TECHNOLOGY DEPT:

March 19, 1941

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DETROIT

NATIONAL PETROLEUM NEWS

CLAD STEELS FIND PLACE IN REFINERY EQUIPMENT

"Clad" steels are giving refiners corrosion-resistant linings for pressure vessels without the necessity for applying them in the field in the form of welded sheets or sprayed metal.

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SPEED-KNOCK RELATIONS SHOW OCTANE NUMBER LIMITATIONS

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Cooler Saves Oil In Diesel Service

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NEWS IN BRIEF

Immediate control of oil industry is sought in National Resources Planning Board report submitted to Congress by President Roosevelt. Page 11.

* * *

D. C. court extends deadline for defendants' answers in big anti-trust suit. Page 11.

* * *

Western Petroleum Refiners plan lubricating trend discussion at April 16-18 meeting. Page 19.

Motor fuel demand for January rises 12%. Page 11.

* * *

Navy to buy increased amounts of oil at higher prices. Page 13.

* * *

New Tennessee refinery planned at Memphis. Page 18.

* * *

'Bigness' in industry questioned by TNEC report. Page 13.

* * *

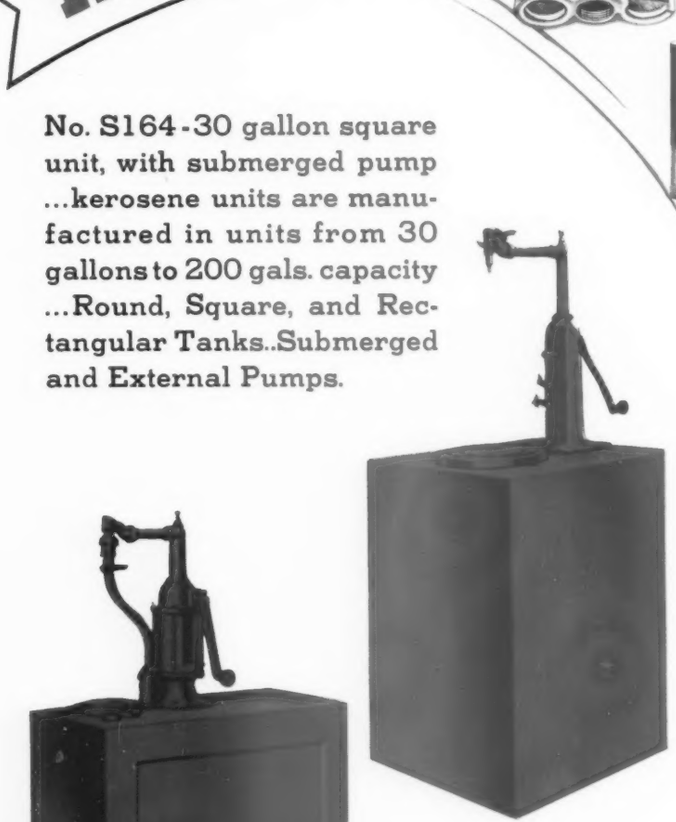
Operating problems on Texas Coast outlined by Gulf refiners. Page 18.

REFINING TECHNOLOGY EDITION

ERIE

MAKES GOOD PRODUCTS

No. S164-30 gallon square unit, with submerged pump ...kerosene units are manufactured in units from 30 gallons to 200 gals. capacity ...Round, Square, and Rectangular Tanks..Submerged and External Pumps.



No. A39—30 gallon Rectangular Highboy . . . With swing return arm 1 quart pump. Highboys are manufactured in units from 16 gallons to 120 gallons capacity . . . Rectangular or Square Tanks . . . One quart pump with swing return arm or with non-drip nozzle.

ERIE
METER SYSTEMS
INC.
ERIE, PENNA.

DIVISION OFFICES: NEW YORK, CHICAGO, DETROIT, CLEVELAND, NEW ORLEANS, TULSA
BOSTON, ATLANTA, RICHMOND VIRGINIA, HOUSTON, DENVER, OAKLAND CALIFORNIA

COMING MEETINGS

MARCH

Oil Trades Assn. of New York, Annual Meeting, Waldorf-Astoria, New York, Tues., March 25.

APRIL

Michigan Petroleum Assn., Annual Spring Convention. Detroit-Leland Hotel, Detroit, Mich., April 2 and 3.

American Assn. of Petroleum Geologists, 26th Annual Meeting, Rice Hotel, Houston, Tex., Wed.-Fri., April 2, 3 and 4.

American Chemical Society, St. Louis, Mo., Mon.-Fri., April 7-11.

Midwest Power Conference, Palmer House, Chicago, Wed.-Thurs., Apr. 9-10.

All Ohio Safety Congress, 12th Annual, Neil House, Columbus, O., Tues.-Thurs., Apr. 15-17.

Western Petroleum Refiners Assn., Arlington Hotel, Hot Springs, Ark., Wed.-Thurs., April 16-18.

American Petroleum Institute, Division of Production, Wm. Penn Hotel, Pittsburgh, Pa., Thurs.-Fri, April 17-18.

Fuel Oil Distributors Assn., Asbury Park, N. J., Wed.-Fri., April 23-25.

Petroleum Industry Electrical Assn., Tulsa, Okla., Wed.-Fri., April 23-25.

Natural Gasoline Assn. of America, Annual Convention, Baker Hotel, Dallas, Texas, Wed.-Fri., April 23-25.

National Petroleum Assn., semi-annual Meeting, Hotel Cleveland, Cleveland, O., Thurs.-Fri., April 24-25.

Petroleum and Natural Gas Conference, State College, Pa., Fri.-Sat., Apr. 25-26.

MAY

American Gas Assn., Natural Gas Section, Dallas, Tex., Mon.-Thurs., May 5-8.

Independent Oil Men's Assn. of New England, Annual Convention, Copley Plaza Hotel, Boston, Mass., Thurs., May 8.

Society of Automotive Engineers, Production Meeting, Schroeder Hotel, Milwaukee, Wis., May 12 and 13.

Virginia Petroleum Jobbers Assn., Spring Meeting, John Marshall Hotel, Richmond, Va., May 15.

Virginia Oil Men's Assn., annual spring meeting, John Marshall Hotel, Richmond, Va., Fri., May 16.

American Institute of Chemical Engineers, 33rd Semi-Annual Meeting, Edgewater Beach Hotel, Chicago, Ill., Mon.-Wed., May 19-21.

American Petroleum Institute, 11th Mid-Year Meeting, Mayo Hotel, Tulsa, Okla., Mon.-Fri., May 19-22.

National Assn. of Purchasing Agents, (Oil Company Buyers' Group) Stevens Hotel, Chicago, Mon.-Thurs., May 26-29.

National Oil Scouts & Land Men's Assn., Dallas, Tex., Thurs.-Sat., May 29-31.

JUNE

Society of Automotive Engineers, Summer Meeting, The Greenbrier, White Sulphur Springs, W. Va., Sun.-Fri., June 1-6.

Illinois-Indiana Petroleum Assn., 9th Annual Petroleum Conference, Robinson, Ill., Sat., June 7.

Pennsylvania Grade Crude Oil Assn., Annual Meeting, Bradford, Pa., Thurs.-Fri., June 19-20.

Kentucky Oil & Gas Assn., Mid-Year Meeting, Lexington, Ky., Fri.-Sat., June 20-21.

American Society for Testing Materials, 44th Annual Meeting, Palmer House, Chicago, Ill., Mon.-Fri., June 23-27.

SEPTEMBER

American Chemical Society, Atlantic City, N. J., Mon.-Fri., Sept 8-12.

National Petroleum Assn., Hotel Traymore, Atlantic City, N. J., Wed.-Fri., Sept. 17-19.

Society of Automotive Engineers, National Tractor Meeting, Schroeder Hotel, Milwaukee, Wis., Thurs.-Fri., Sept. 25-26.

National Lubricating Grease Institute, 9th Annual Meeting, Stevens Hotel, Chicago, Ill., Mon.-Tues., Sept. 29-30.

OCTOBER

Texas Mid-Continent Oil & Gas Assn., Beaumont, Tex, Tues.-Thurs., Oct. 9-11.

NOVEMBER

American Petroleum Institute, 22nd Annual Meeting, San Francisco, Calif., Mon.-Fri., Nov. 3-7.

NATIONAL PETROLEUM NEWS

MARCH 19, 1941

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THIS WEEK WITH NPN

ARMY LUBRICATION

The importance of proper lubrication to our armed forces is illustrated in a letter from the branch manager of a large marketing company who tells us he has resigned his position to become automotive instructor for the army. He writes: "I teach the mechanics of automotive engines to our soldiers. That also pertains to lubrication which the army thinks is one of the most important subjects in the course. This, no doubt, is very pleasing to the oil industry." NPN calls attention to U. S. Army rule, featured on its Petroleum Engineering Bulletins, showing the army rule is to change oil every 500 to 1000 miles.

SUNKEN SHIPS

If some of NPN's subscribers in Europe are wondering what has happened to late issues of NPN—here's the answer. A postoffice compilation shows that 15,501 sacks of mail to foreign countries lie at the bottom of the sea because of mines and torpedoes. But NPN's readers in war-torn Europe don't want to miss a single issue as evidenced by mail asking for replacements.

OIL LOG

One of the features in NPN is the "Log of Oil Legislation." Much of this information comes from various state capitals and oil associations. NPN editors receive each day reams of reports from various sources. These are carefully sifted for legislation affecting the oil industry and the results are published in NPN weekly.

BATTERY SALES

Last week, we told you how one marketer reported that some of his dealers had increased lubrication service 20% through NPN posters. Now, another marketer reports that at one station "we got several customers to change oil more often and to use a better oil. The sale of 4 batteries and the charging of 8 or 9 we can trace directly to NPN's Petroleum Engineering Bulletins."

"So our cost experts put METE

Metering Pays!
CONTROL—SAVE—PROFIT
by Meter Audit

Metering Stock-Control Plan for Bulk Stations

A combined engineering and accounting system which provides positive control of stock receivals and withdrawals, and sets up an automatic daily inventory and audit. Identifies and checks product losses; organizes business for profit. Highly endorsed wherever used. Ask to have our field engineer explain it to you.

IT HAS HAPPENED time and again. The cost experts at bulk plants had become concerned about "unimportant" shrinkages, and had made pests of themselves until meters were installed. Then, with meters on the job, former leaks and losses at the loading rack were turned into savings that dumbfounded the plant operators.

Even in fuel oil salvage by loading rack metering, the added income is not to be sneezed at. This fact is so widely recognized that over 60% of the distributors in the important fuel oil consumer markets now use loading rack meters.

The smallest plant marketing fuel oil, gasoline, kerosine, or other petroleum product can benefit. Hundreds of RED SEAL installation histories have confirmed the profit and common-sense advantages such as these in loading rack metering.

1. Metering detects tank miscalibration or changes in compartment ratings due to wall distortion. It accurately checks the capacity of each delivery tank truck compartment at every loading. With metered loading no compartment dump can be of excess gallonage.
2. Loading is speeded up. The work of yard man or dispatcher is greatly simplified, permitting him to superintend the loading of trucks of a busy rack without costly delays.
3. Overfilling and spillage are prevented.
4. Thefts and fraud are eliminated.
5. In accounting for every gallon, metering induces carefulness of the personnel.
6. Metering does away with arguments and guesswork; insures customers' confidence in the accuracy of your measure. A builder of good-will.

By eliminating unaccounted-for losses, metering assures positive sales control and a check on inventory. It helps keep stock losses down to a minimum. Bookkeeping and tax computations are simplified.

Scores of bulk plant operators have testified that loading rack RED SEAL metering is "the best investment" they ever have made. None would go back to unmetered loading. It is their practice, when increasing loading-

NEPTUNE RED

METERS FOR LOADING RACKS • • • DELIVERY TANK TRUCKS

1572

·STATISTICS·

N. P. N. Gasoline Index

	Dealer T. W.	Tank Car
	Cents per Gallon	
March 17	8.74	5.16
Month ago	8.63	5.11
Year ago	9.61	5.86

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.

Crude Oil Stocks

(U. S. Bureau of Mines figures, thousands of barrels)

Grade or origin	Mar. 1	Mar. 8	Change from Mar. 1
Pennsylvania Grade	4,309	4,312	+ 3
Other Appalachian	1,261	1,348	+ 87
Lima-Michigan	1,162	1,157	— 5
Illinois-Indiana	20,719	21,049	+330
Arkansas	3,116	2,982	—134
Kansas	9,051	8,902	—149
Louisiana:	12,542	12,632	+ 90
Northern	4,719	4,625	— 94
Gulf Coast	7,823	8,007	+184
Mississippi	1,003	842	—161
New Mexico	7,463	7,125	—338
Oklahoma	64,064	64,321	+257
Texas:	83,684	84,045	+361
East Texas	19,713	20,024	+311
West Texas	15,894	16,391	+497
Gulf Coast	22,306	22,552	+246
Other Texas	25,771	25,078	—693
Rocky Mountain	15,167	15,480	+313
California	37,099	37,183	+ 84
Foreign	2,536	2,623	+ 87
Total United States refinable	263,176	264,001	+825
Heavy in California	12,199	12,242	+ 43

Dealer & Service Station Gasoline Prices 50 Representative U. S. Cities as of March 1, 1941

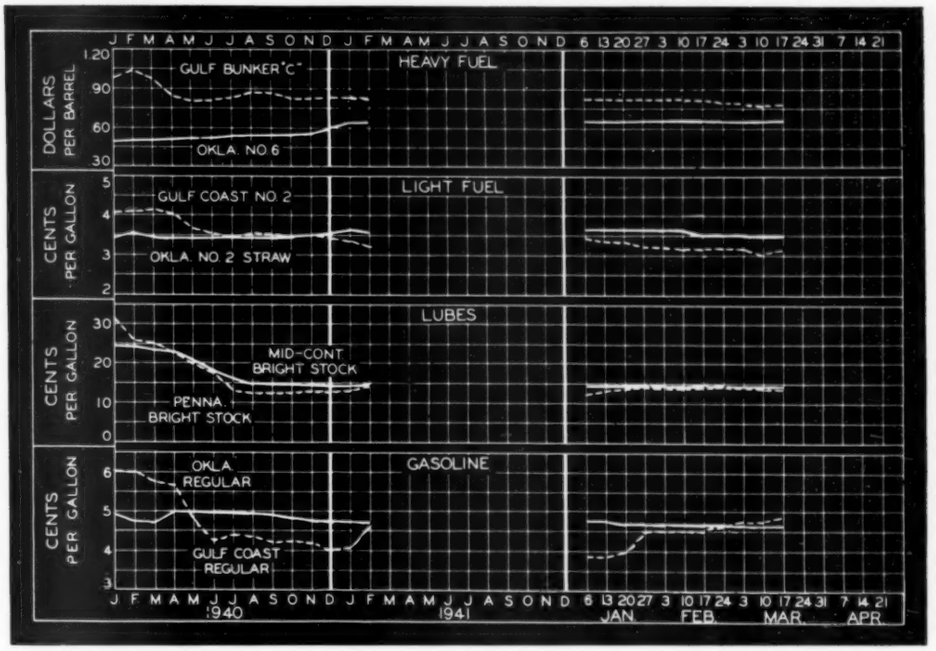
(Reported in American Petroleum Industries Committee Tax Economic Bulletin)

	Dealers' Net Price (Ex Tax)	Indicated Dealer Margin (Ex Tax)	'Gas' Tax (Inc. 1.5c Federal Tax)	Service Station (Inc. Tax)
	(Cents per gallon)			
Portland, Me.	7.2	3.0	5.5	15.7
Manchester	7.3	3.0	5.5	15.8
Burlington, Vt.	6.5	2.5	5.5	14.5
Boston	6.9	2.9	4.5	14.3
Providence	7.4	3.1	4.5	15.0
Hartford	7.0	3.0	4.5	14.5
Buffalo	8.0	3.0	5.5	16.5
New York	7.2	2.8	5.5	15.5
Newark	7.0	3.4	4.5	14.9
Philadelphia	7.5	2.0	5.5	15.0
Dover, Del.	8.0	2.0	5.5	15.5
Baltimore	7.75	4.05	5.5	17.30
Washington	7.5	3.0	3.5	14.0
Charleston, W. Va.	9.55	4.05	6.5	20.1
Norfolk, Va.	8.75	4.55	6.5	19.8
Charlotte, N. C.	8.5	4.0	7.5	20.0
Charleston, S. C.	8.75	4.25	7.5	20.5
Atlanta	7.5	4.0	7.5	19.0
Jacksonville	7.5	3.0	8.5	19.0
Birmingham	8.0	4.5	8.5	*21.0
Vicksburg	8.0	5.0	7.5	20.5
Memphis	8.0	4.0	8.5	20.5
Lexington	9.0	3.5	6.5	19.0
Youngstown, O.	8.0	3.0	5.5	16.5
South Bend	9.8	4.7	5.5	20.0
Chicago	8.1	2.57	4.5	15.17
Detroit	8.1	3.25	4.5	15.85
Milwaukee	9.8	4.1	5.5	19.4
St. Paul-Minneapolis	9.7	4.0	4.5	18.2
Fargo, N. D.	11.2	3.5	5.5	20.2
Huron, S. D.	10.5	4.0	5.5	20.0
Omaha	9.4	3.5	6.5	19.4
Des Moines	9.4	3.7	4.5	17.6
St. Louis	8.7	3.2	4.5	*16.4
Wichita	7.8	3.5	4.5	15.8
Tulsa	7.0	2.5	5.5	15.0
Little Rock	8.0	4.0	8.0	20.0
New Orleans	7.75	4.25	8.5	20.5
Houston	7.0	4.0	5.5	16.5
Albuquerque	9.0	4.5	7.0	**20.5
Denver	9.0	4.0	5.5	18.5
Casper, Wyo.	11.0	5.0	5.5	21.5
Butte, Mont.	9.0	4.0	6.5	19.5
Boise, Idaho	12.0	4.0	6.6	22.6
Salt Lake City	10.5	4.5	5.5	20.5
Reno, Nev.	11.0	4.0	5.5	20.5
Phoenix, Ariz.	11.0	4.0	6.5	21.5
San Francisco	9.0	4.0	4.5	17.5
Portland	9.5	4.0	6.5	20.0
Spokane	11.0	4.0	6.5	21.5
Average 50 Cities	8.62	3.65	5.9	18.17

*Includes 1c City Tax. **Includes 0.5c City Tax.

REFINERY TANK CAR PRICES

(Monthly prices in graphs are averages of daily high and low prices shown in Platt's Oilgram. Weekly prices are averages of high and low prices shown in Monday Oilgram, and in National Petroleum News.)



Petroleum Supply & Demand, January 1941

(U. S. Bureau of Mines figures, thousands of barrels)

	January 1941	December 1940	January 1940	January 1939
NEW SUPPLY:				
Domestic production:				
Crude petroleum	110,647	110,520	113,140	102,869
Daily average	3,569	3,565	3,650	3,318
Natural gasoline	4,884	4,950	4,271	4,382
Benzol†	313	298	272	190
Total production	115,844	115,768	117,683	107,441
Daily average	3,737	3,734	3,796	3,466
Imports:*				
Crude petroleum for domestic use	2,712	4,673	1,664	1,373
Crude petroleum in bond	81	60	286	495
Refined products for domestic use	‡2,410	3,585	1,321	589
Refined products in bond	§882	311	1,441	1,048
Total new supply, all oils	121,929	124,397	122,395	110,946
Daily average	3,933	4,013	3,948	3,579
Decrease in stocks, all oils	4,823	2,870	4,324	1,062
DEMAND:				
Total demand	126,752	127,267	126,719	112,008
Daily average	4,089	4,105	4,088	3,613
Exports:*				
Crude petroleum	1,687	2,074	4,202	4,480
Refined products	**5,531	4,917	6,726	8,477
Domestic demand:				
Motor fuel	45,344	46,413	40,370	38,089
Kerosine	7,769	7,808	7,642	5,980
Distillate fuel oil	20,998	19,702	22,462	16,518
Residual fuel oil	33,338	33,955	32,473	28,632
Lubricating oil	2,367	1,875	2,054	1,609
Wax	135	113	125	74
Coke	977	703	689	530
Asphalt	1,136	1,313	821	1,167
Road oil	125	169	132	173
Still gas	5,349	5,672	5,522	5,281
Miscellaneous	242	219	240	173
Losses	1,754	2,334	3,261	825
Total domestic demand	119,534	120,276	115,791	99,051
Daily average	3,856	3,880	3,735	3,195
STOCKS:				
Crude petroleum:	263,251	264,079	239,794	272,931
Refinable in U. S.	11,839	11,906	13,385	16,356
Heavy in Calif.	5,490	5,704	4,476	4,647
Natural gasoline	278,551	282,265	262,791	272,707
Refined products				
Total, all oils	559,131	563,954	520,446	566,641
Days' supply	137	137	127	157

†From Coal Economics Division. *Imports of crude as reported to Bureau of Mines; all other imports and exports from B. F. D. C. ‡Exclusive of 73,000 barrels imported into non-contiguous territories. §Exclusive of 120,000 barrels imported into non-contiguous territories. **Exclusive of 13,000 barrels exported from noncontiguous territories; inclusive of 746,000 barrels shipped from U. S. to territories, and, inclusive of less than 500 barrels withdrawn from bond for export.

Counter mechanisms include direct-reading Horizontal Register, Vertical Dial, Large Numeral Counter, and Ticket Printer combinations, with or without Set-Stop. Model shown here has Vertical Dial.

SMITH METER CO. *Announces* 3 New Truck Meters

(1½"; 2"; 2½")

★ ***FAST***—*faster delivery, size for size, than any other meter made*

★ ***ACCURATE***—*guaranteed within 1/10 of 1% throughout operating range*

★ ***FLEXIBLE***—*easily adapted to any piping arrangement.*

LOOK at these three new Smith Meters for truck service from any standpoint, and you will see that they offer more money-saving and profit-making features than any other gravity truck meters you ever saw. Their unequaled measuring speed saves time. Their guaranteed accuracy saves money. And their built-in stamina that assures long service saves both.

All three operate on the Smith Rotary Principle—developed and pioneered by this company. This principle has proved itself so basically sound that it has completely revolutionized standards in the petroleum meter industry. Only in a Smith Meter, however, can you get the *simple, time-tested method* of liquid displacement measurement afforded by this principle.

All three of these new meters can be quickly and economically installed in your trucks regardless of the piping arrangement you require. Twenty-four different arrangements are possible without structural alteration of the meter.

For detailed information, write to the Smith Meter Company office nearest you.

SMITH METER COMPANY

SUBSIDIARY OF A. O. SMITH CORPORATION

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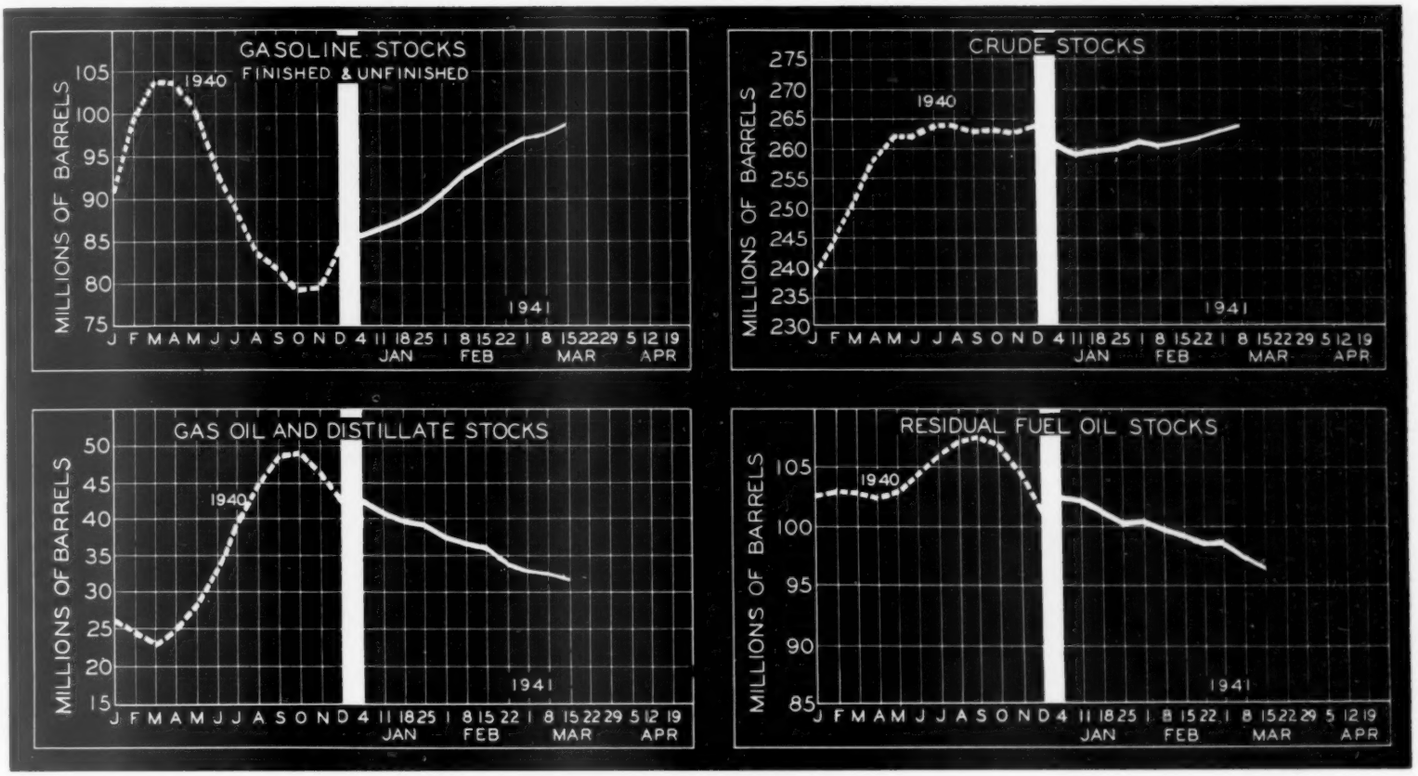
SALES OFFICES AT NEW YORK, CHICAGO, HOUSTON, LOS ANGELES • LOCAL STOCKS AT CONVENIENT POINTS

•STATISTICS•


GASOLINE STOCKS
FINISHED & UNFINISHED
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1940
1941
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JAN FEB MAR APR
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GAS OIL AND DISTILLATE STOCKS
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RESIDUAL FUEL OIL STOCKS
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J F M A M J J A S O N D 4 11 18 25 1 8 15 22 1 8 15 22 29 5 12 19
JAN FEB MAR APR

A.P.I. Report of Refinery Operations

(Figures in Thousands of Barrels of 42 Gallons Each)

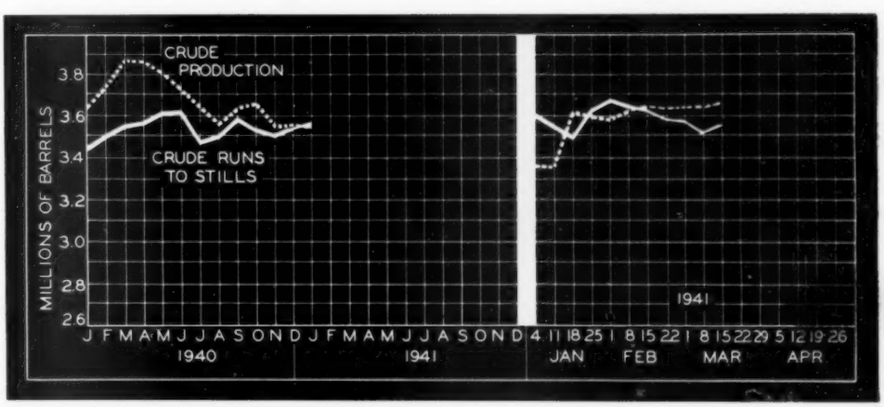
Districts	Daily Average Crude Runs to Stills Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Gasoline Production at Refineries incl. Natural Blended Week Ended		Total Stocks Finished & Unfinished Gasoline Week Ended		Total Stocks Gas Oil & Distillates Week Ended		Total Stocks Residual Fuel Oil Week Ended		Stocks Aviation Gasoline Included in Finished & Unfinished Gasoline Total Week Ended	
	Mar. 15	Mar. 8	Mar. 15	Mar. 8	Mar. 15	Mar. 8	Mar. 15	Mar. 8	Mar. 15	Mar. 8	Mar. 15	Mar. 8	Mar. 15	Mar. 8
East Coast	542	553	84.3	86.0	1,506	1,489	20,638	19,426	9,909	10,809	8,649	8,472		
Appalachian	117	119	82.4	83.8	428	441	3,220	3,269	374	387	467	477	**East Coast**	
Ind., Ill., Ky.	584	596	87.2	89.0	2,276	2,137	19,353	18,957	2,573	2,774	3,077	3,070	686	758
Okla., Kans., Mo.	279	280	86.4	86.7	*948	*892	8,790	8,775	1,291	1,282	1,937	1,920	**Interior**	
Inland Texas	126	129	75.4	77.2	623	631	2,452	2,398	333	349	1,405	1,473	768	826
Texas Gulf	889	842	93.1	88.2	2,838	2,642	15,353	15,434	5,170	5,078	6,947	6,936		
La. Gulf	134	122	83.8	76.3	334	313	3,425	3,309	955	793	2,325	2,128	**Gulf Coast**	
N. La. Ark.	39	44	75.0	86.5	130	124	548	577	289	294	541	551	3,254	3,122
Rocky Mt.	44	35	64.7	51.5	219	195	1,678	1,643	165	170	470	457	**California**	
California	458	445	62.7	61.0	1,430	1,251	16,522	16,440	10,044	9,938	69,173	70,208	1,589	1,583
Reported	3,212	3,165	82.1	80.9	10,732	10,115	91,979	90,228	31,103	31,874	94,991	95,692	6,297	6,289
Estimated Unreported	338	340			1,465	1,380	7,000	6,950	540	555	1,670	1,680	250	250
U. S. Total†	3,550	3,505			12,197	11,495	98,979	97,178	31,643	32,429	96,661	97,372	6,547	6,539
U. S. Total 3-15-40†	3,551				11,175		101,289		23,938		103,031		4,261	

*12% of reporting capacity in this district did not report gasoline production. †Estimated, U. S. Bureau of Mines basis.

U. S. Crude Oil Production

(American Petroleum Institute figures)

	WEEK ENDED Mar. 15 Barrels (Daily Average)	Mar. 8 Barrels (Daily Average)
Oklahoma	393,850	402,750
Kansas	206,450	191,550
Nebraska	4,350	4,350
Texas	1,360,150	1,349,400
Louisiana	298,950	296,100
Arkansas	70,800	70,700
Mississippi	19,150	20,600
Illinois	325,650	326,550
Indiana	19,150	19,150
Eastern (Ill. & Ind. excluded)	91,600	86,300
Michigan	38,000	39,800
Wyoming	81,250	85,150
Montana	20,000	18,250
Colorado	3,500	3,700
New Mexico	104,200	104,200
California	625,400	614,900
Total U. S.	3,662,450	3,633,450
Crude Imports	75,750	151,140
Total New Supply	3,738,200	3,784,590


CRUDE PRODUCTION
CRUDE RUNS TO STILLS
MILLIONS OF BARRELS
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JAN FEB MAR APR

Heads New England Independent Oil Men . . .

● If John W. Scott had not enlisted in the Army back in 1917, he might have been a leading stage and screen actor. However, he is prominent in another field, today being president of Buckley & Scott Utilities, Inc., Boston marketers of oil burners, fuel oil and air conditioning equipment. In February, this ex-showman was elected to presidency of the Independent Oil Men's Assn. of New England.

Born in New York City, June 19, 1895, Mr. Scott attended school here until he was 16, at which time business offered a greater fascination than books. Consequently, after promising his parents to study at night and to attend Columbia University evening classes, his career started in the stockroom of a linen company. Soon, he became a salesman.

On a visit to the West Coast in 1915, Mr. Scott interested his uncle in oil heating and became much interested in it himself. But a trip to Hollywood soon after that sidetracked him into a stage and screen career which lasted until he entered the Army in 1917, where he became a commissioned officer.

In 1919, this ex-showman and Army officer joined the Petroleum Heat & Power Co., then known as the Fess Rotary Oil Burner Co., to take charge of sales in Providence, R. I. Oddly, Mr. Scott's San Francisco uncle—who had not shown too much interest in oil burners on his nephew's trip to the West some years previous—was responsible for the new position.

In 1920, Mr. Scott successively undertook the job of raising $60,000 in order to enter the oil heating business on an independent scale. His partner in this enterprise was Alfred Buckley, the other half of the current team of Buckley & Scott Utilities. They entered business under the name of Automatic Oil Heating Co., and by the end of 1923, the year's oil burner sales totaled 600.

Continued expansion of the retail business in the twenties and thirties made it necessary for Buckley & Scott to purchase a building located at 60-70 Arsenal St., Boston.

In 1939, employes of Buckley & Scott honored the head of the firm by publishing Mr. Scott's biography, in booklet form.

. . . John W. Scott

NATIONAL PETROLEUM NEWS

VOLUME 33 WEDNESDAY, MARCH 19, 1941 NUMBER 12

Anti-Trust Answers Extended 1 Month; Discuss Settlement

N. P. N. News Bureau

WASHINGTON, March 17.—District of Columbia Federal District Court in a consent order entered March 12, extended from April 1 to May 1, date on which defendants must file answers in Justice Department's anti-trust suit against American Petroleum Institute, Ethyl Gasoline Corp., 22 major oil companies and their alleged affiliates.

Meanwhile, in the absence of any statement from Justice Department, grapevine reports hint that any settlement of the over-all anti-trust suit in next few weeks is unlikely, despite published reports that current negotiations may provide basis for such a settlement within two weeks.

Status of negotiations, which have been going on between a committee of 6 attorneys for major oil companies, headed by Harry T. Klein, vice-president and general counsel of The Texas Corp., and a group of Justice anti-trust attorneys, including Mac Asbill, W. B. Watson Snyder and Holmes Baldridge, is, according to the grapevine reports, as follows:

Discussions have been general in character so far, and a basis

(*Continued on page* 14)

Gasoline Demand Up 12% During January

N. P. N. News Bureau

WASHINGTON, March 13.—Domestic demand for motor fuel in January exceeded expectations and amounted to 45,344,000 bbls., or 12% above a year ago, Bureau of Mines reports.

Exports of motor fuel of 2,045,000 bbls. were also larger than anticipated, but somewhat under total for January last year.

Stocks of finished and unfinished gasoline increased nearly 6,000,000 bbls. during the month to a total of just over 90,000,000 bbls. Jan. 31. This was about 600,000 bbls. less than on hand a year ago, and excluding aviation-gasoline stocks, about 3,250,000 less.

The comparatively mild weather of this January was reflected in the distillate fuel demand which was 7% lower than a year ago. On the other

(*Continued on page* 14)

Oil Industry Control Sought By FDR as 'Defense Measure'

N. P. N. News Bureau

WASHINGTON, March 17.—Immediate federal control of the oil industry is urged in a report of the National Resources Planning Board which was transmitted to Congress today by President Roosevelt.

This report embraces a broad program contemplating government regulation of all natural energy resources including coal, natural gas and water power.

Described by Chief Executive, in an accompanying message to Congress, as a "six-year program of public construction and a statement of related future policies and plans of the federal government," report, President Roosevelt said, is first of a series of such documents to be submitted to Congress annually.

Entitled "Development of Resources and Stabilization of Employment in the United States," the report outlines a specific program for federal oil control and sets forth its recommendations as follows:

Seeks Price Control

"Petroleum products are absolutely essential to the national defense. Immediate steps are necessary to establish emergency powers adequate to control the allocation of production and refining among the various districts and to control the prices of petroleum and its products in relation to other fuels. Such emergency powers should be framed after reappraising the powers and forms of organization of the existing regulatory agencies, including those dealing with production, transportation, and marketing.

"Creation of a Federal oil conservation body is recommended to administer the interests of the United States as a whole in oil and gas, to cooperate with the States in protecting the Nation against waste, and otherwise to pursue the objectives here stated.

"For emergency purposes, there should be up-to-date estimates of requirements for oil and gas, these estimates to be used in controlling the development and extraction of reserves that are suitable for products of special military significance. Attention should be given to the desirability of expanding the military reserves and to their protection from commercial exploitation. The expansion of commercial production to meet emergency needs should be carefully planned to avoid waste and to minimize post-emergency disturbances.

Favors Some Imports

"A policy favorable to imports is recommended, particularly for grades of crude oil not readily available in the domestic market.

"In the longer view and in designing emergency measures as parts of a long-range plan, the peculiar dependence of transportation motive power on petroleum products should be clearly realized. These mobile uses are compelling reasons for more efficient production and use of oil. The limited quantities of proved reserves in relation to sharply increasing consumption should be emphasized; the danger of an actual lack is not imminent, but the prospect of definitely higher costs in world trade is not far off.

"Over-production and waste of oil should be studied in relation to its distribution and to its consumption for less essential purposes. Those uses of petroleum for which available substitutes are relatively costly—notably lubricants and gasoline—should be protected. The use of oil and natural gas should be discouraged wherever heat or power from other sources is suitable and economic and

Cleveland Defense Boom Boosts Gasoline Gallonage

(This is second in series of articles analyzing how defense activities are affecting oil marketing. First article was on Louisville, Ky., area, appearing in March 5th issue of NPN; another will be published next week—Editor.)

By N.P.N. Staff Writer

CLEVELAND, March 17. — Cleveland, the nation's machine tool center, has booked half a billion dollars of defense orders but the great demand for petroleum products in general is just starting. It will be another six months before the city reaches its maximum activity in production and employment.

Gasoline gallonage in Cleve- 2 months of this year ran as high as 14% above last year for some companies. All signs point to some record-breaking gains in consumption this year. Factories, of course, are consuming much larger quantities of industrial oils and greases which is partly responsible for tightening up of neutral oils in the tank car market.

Otherwise the national defense program is hitting oil marketers by taking employes for the Army and for employment in defense industries, resulting in the closing of a few leased stations and boosting the wage levels at many others.

Cleveland is one of the greatest general manufacturing centers in the country. It takes raw steel from the Pittsburgh-Youngstown mills, as well as from its own mills, and turns it into most every kind of product. Large quantities of automobile parts are made here and shipped to Detroit and other automobile assembling centers. The city has, since coming of the machine age, been noted for its highly skilled machinists and tool makers. Many of those making tools, ranging from fine scientific instruments to auto parts, are the sons and grandsons of machinists trained in New England and even in old England and on the Continent.

In the past several years, Cleveland has had large new plants erected and equipped from private capital for both private and war purposes. Much of the plant expansion for this

(*Continued on page* 22)

where the factor of convenience is not important.

Greater Stability Sought

"In the production field, it is essential for the Federal Government and the States together to devise, adopt and enforce methods leading to more stability as well as to less waste and conflict. Unit operation of petroleum pools is desirable, and to this end it is recommended that direct and indirect means be adopted for stimulating the pooling of lease and royalty interests. The principle of correlative rights and of ownership-in-place should be substituted for the "rule of capture"; to encourage this, better methods for measuring underground reserves should be found. The problem of regulating production in fields located far from adequate markets should be attacked."

Report, previously, had frequently mentioned Federal control of petroleum in a more general discussion of "Energy Resources Policies," immediately preceding specific recommendations of National Resources Planning Board.

"The States and the Federal Government, without much attention to co-ordination, have introduced various measures aimed to facilitate wise use of energy resources," report said. "In the main, each of these efforts has been directed toward a single group of problems—the correction of demoralizing and wasteful practices and conditions in the petroleum and natural gas industries, the relief of economic distress and the promotion of safety in coal mining, or the protection and development of the public interest in water power. It is time to take a broader view. It is time to recognize more fully that these problems interlock, to weigh the conflicting interest and the differing points of view, and to resolve these conflicts in the interest of a national economy based on large-scale use of low-cost energy.

Emergency Needs Cited

"In the immediate foreground are new and heavy demands for energy to drive production for the national defense. Measures are urgently needed to provide coal, oil, gas and electric energy in the right places and in sufficient quantities; to guide the necessary expansion, on the one hand, but to avoid over-expansion, waste, and conflict, on the other. Emergency needs of the national defense program must be met, and measures to meet emergency needs will be more effective—not less effective—if they are also steps in long-range plans by resourceful men. Winning the skirmish of immediate needs must not mean losing the long-range battle of fundamental national strength and economic health.

"The objective of social policy toward the energy resources of coal, petroleum, natural gas, and water power is 'conservation and wise use'—the principle established by Theodore Roosevelt more than 30 years ago. . . .

"In the utilization of energy resources, the profit motive has led to increased efficiency because consumers fuels find it to their interest to make their purchases go further. In production and distribution, however, private gain has not proved an adequate stimulus for all of the needs of conservation and, in fact, may be the chief cause of wasteful exploitation.

Private Enterprise Hit

"In the petroleum industry, for example, public action is apparently compelled because private enterprise, unaided, cannot deal with the problem of waste. Investment capital, reservoir energy, and petroleum reserves have been wasted as a result of efforts to obtain quick profits. Much of the responsibility for corrective action rests upon the Federal Government. . . .

"The immediate objective of a prudent national policy in this field is to provide an effective supply of energy to drive the emergency program for national defense, through eliminating bottle-necks and straightening the flow of energy resource materials and through providing the necessary new supplies (including especially electric power) where they are most needed and where their presence will support a better and stronger industrial structure both for the emergency and for the longer view.

Objectives Are Outlined

"The underlying objectives are stated in broad terms as follows:

"1. The program should strengthen the national economy for peace or war through greater efficiency in production and greater economy in the use of mineral fuels; using where possible bituminous coal, of which there is an abundance in the ground and water power which is wasted if not used; reserving where possible the meager known supplies of petroleum and natural gas for special duties to which they are essential.

"2. The program should advance the public welfare and improve the living standards of the people through more efficient production, distribution, and utilization of an increased supply of energy; through the use of fuels and of water power for the purposes to which each is especially adapted; through protecting and improving labor standards and stabilizing employment in the energy resource industries, and guiding into less wasteful channels the inevitable competition of one resource with others.

"3. The program should provide for continued investigation and planning by public and private agencies toward these objectives, emphasizing that immediate measures will be most effective for the emergency if they are also permanent foundation stones for long-range plans."

NRPB Recommendations Seen As FDR's Oil Control Plan

N. P. N. News Bureau

WASHINGTON, March 18.—Reaction in Washington, among those close to oil scene, to the National Resources Planning Board report transmitted to Congress this week by President Roosevelt, is that the national defense oil control recommendations contained therein, are in fact chief executive's program for federal control of oil industry which he wants Congress to enact this session.

Washington oil observers say, however, they are unable to provide answers to 2 important questions: first, whether President has given his final or merely his tentative approval to resources board federal oil control recommendations, and second, whether he has approved these plans in detail, or merely in principle.

Oil observers also state following "significant" conclusions may be drawn from resources board report:

Recommendations, which show marked resemblance to federal oil control philosophy of Secretary Ickes and Interior Department, go much farther than previous production control proposals, since Government would, in addition, be given control over transportation and marketing.

Recommendations apparently have provided method for President Roosevelt to get his federal oil control program before House Oil Investigating Committee, without leaving himself open to public defeat if proposal is rejected by Congress. (House Oil Investigating Committee insofar as could be immediately learned, has not decided what role, if any, resources board report will play in its hearings opening March 27).

Recommendations, although presented to Congress in name of national defense emergency, propose to set up permanent system of federal control for oil industry which will continue after present emergency is past.

Texas Anti-Control Bill Now In Congress

N. P. N. News Bureau

WASHINGTON, March 18.—Resolution of Texas legislature opposing federal oil control has been presented to Senate by Vice-President Wallace and to House by Speaker Rayburn. Resolution has been referred to Senate Mines and Mining and House Interstate and Foreign Commerce Committees.

D. J. Presses Trial Of Pipeline Suits

N. P. N. News Bureau

WASHINGTON, March 17.—Justice Department counsel is reported still pressing for early trial of 3 suits involving Phillips Petroleum Co., Great Lakes Pipe Line Co., and Standard Oil Co. of Indiana, which alleges dividends received by major oil companies from pipeline operations constitute illegal rebates under Elkins Act. Government last fall asked Delaware Federal District Court to expedite trial of Phillips and Great Lakes cases before a 3-judge district court.

Name Subcommittee On Oil Divorcement

N. P. N. News Bureau

WASHINGTON, March 18.—Senate Judiciary Committee chairman Van Nuys has appointed subcommittee to hold hearings on oil divorcement bills of Sen. Gillette, Iowa, (S-170, marketing, S-171, tankers, S-172, pipelines), but no hearing date has been set as yet, Senator's office said today. Members of subcommittee are: Senators Chandler, Ky. (chairman), Hatch, N. M., Norris, Neb., Danaher, Conn., and McCarran, Nev.

Natural 'Gas' Production Declines in January

N. P. N. News Bureau

WASHINGTON, March 17.—Production of natural gasoline declined in January, 1941, Bureau of Mines has reported. Daily average in January was 6,617,000 gals., compared with 6,706,000 gals. in December 1940, chief decreases occurring in the Texas Gulf, and Panhandle districts, and in Louisiana.

Navy To Hike Fuel Purchases At Increased Prices for '41

N. P. N. News Bureau

WASHINGTON, March 14.—House Appropriations Committee this week disclosed Navy Department plans to buy 17,257,200 bbls. of fuel oil in fiscal year beginning July 1, at average price of $0.7867 per bbl., as compared with 15,911,500 bbls. this year, at $0.7736.

Fuel purchasing plans, which were furnished committee during Navy Department Appropriations Bill hearings by Admiral Spear, Chief of Supplies and Accounts, also showed Navy as expecting to buy 1,030,650 bbls. of diesel oil at $1.5455 as compared with 351,700 bbls. at $1.5082; 2,895,600 gals. of motor gasoline at $0.0683, as against 2,402,500 gals. at $0.0663; aviation gasoline, for motorboats, 275,000 gals. at $0.0803, as against 188,800 gals. at $0.0873.

Navy fuel expenditures, representing an increase of $2,572,989 over this year, will total $15,588,719 for coming fiscal year, including $13,576,239 for fuel oil; $1,592,869 for diesel oil; $197,773, for motor gasoline; and $22,083 for aviation gasoline for motorboats.

To Change Octane

Admiral Tower, chief of naval aviation, told committee it would cost $1,324,697 next year to change Navy planes over from 92-octane aviation gasoline, costing 9 to 10c a gal., to 100-octane, costing around 18c, but did not throw further light on Navy's aviation fuel demand for coming fiscal year.

Admiral Moreell, chief of yards and docks, provided committee with a more extensive picture (See NPN, Feb. 26) of Navy Department's plans for additional underground gasoline storage at numerous naval air stations, which included following projects to cost total of $2,275,000:

Pearl Harbor T. H., $500,000 (1,575,000 gals.); Unalaska, Alaska, $165,000 (250,000 gals.); Jacksonville, Fla., $150,000; Johnston Island, $100,000; Kodiak, Alaska, $360,000; Norfolk, Va., $150,000; Palmyra Island $150,000; Seattle, Wash., $100,000; Sitka, Alaska, $300,000; Tongue Point, Oreg., $130,000; Guam, $160,000; San Juan, P. R., $60,000.

Admiral Moreell also listed $275,000 for fuel oil storage at San Juan and $35,000 for service oil tanks at Miami, Fla., air stations, as well as gasoline storage at naval fuel depots, to cost $200 000 at Norfolk, Va., and $65,000 at Sangley Point, P. I.

Kerosine, Fuel Oil Prices Cut at 2 New York Points

NEW YORK—Socony Vacuum Oil Co. announced that, effective March 12, it reduced its tank car prices for kerosine 0.1c per gal. at Rochester and Syracuse, N. Y., and its Mobilheat (Nos. 2 and 3 fuels) tank car prices 0.2c per gal. at Buffalo and Syracuse and 0.3c per gal. at Rochester.

Circuit prices in many surrounding areas will be reduced generally 0.2c on Mobilheat and 0.1c on kerosine for all methods of delivery.

California Posting For Crudes Revised

N. P. N. News Bureau

LOS ANGELES, March 15.—Effective March 12, Standard Oil Co. of California announced that in accordance with the trend of current demand for the various grades of crude oil it was adjusting its posted prices in the San Joaquin Valley fields and the Elwood field.

An increase of 5c per bbl. was made in the heavy crudes and a maximum reduction of 10c per bbl. up to 37 gravity, with a top on the higher gravities of $1.19 per bbl.

Fields chiefly affected by the reduced schedule for high gravity oils were Greeley Canal, where 48 to 48.9 gravity oil had previously been posted at $1.64—a cut of 45c per bbl.; Coles Levee, Richfield Western, where 45 to 45.9 gravity oil had been posted at $1.57 per bbl.—a cut of 38c per bbl. and Kettleman Hills, where the top figure was $1.38 for 39 to 39.9—a drop of 19c per bbl.

Union Oil Co. followed Standard's revisions on March 13, and General Petroleum Corp. and The Texas Co. made similar adjustments in their schedules on March 14, according to announcements from these companies.

Considerable unfavorable comment was reported on these reductions in high gravity oils by producers in the areas affected.

Cole Hearings Postponed Until March 27

WASHINGTON, March 18.—Lack of a hearing room has caused postponement of House Oil Investigating Committee hearings to Thursday, March 27, Chairman Cole's office said today. In announcing "final" committee hearings last week, Cole said they would open March 25.

TNEC Questions 'Bigness' in Industry Favoring 'Medium-Sized' Independents

N. P. N. News Bureau

WASHINGTON, March 14. — Federal Trade Commission has cited data to show medium-sized independent company has lowest oil production costs, and medium or small company is most efficient refining unit, in a Temporary National Economic (Monopoly) Committee monograph, which raises the general question of whether "bigness" in industry is justified.

Entitled, "Relative Efficiency of Large, Medium-Sized and Small Business," monograph, using figures for 1929-30, points out that lowest cost non-lubricant and lubricant refineries in California, on Gulf Coast, Atlantic Coast and in interior states, were either medium-sized or small, with the exception of one large lubricant refinery on the Gulf Coast.

FTC then stated, using average costs per barrel of producing crude petroleum for years 1927-30, inclusive, that lowest costs were those of medium-sized independent oil companies—oil producers being classified as standard company majors, non-standard company majors, medium-sized independents, small independents and very small independents (which had the highest costs of all).

Views on 'Size' Told

Monograph, which according to Chairman O'Mahoney, is before Economic Committee for consideration in drafting committee's final report to Congress, reaches following conclusion on "size" in business:

"When free and fair competition prevails, business is under a constant spur to reduce costs through efficiency, and to share such savings with the public in the form of lower prices. The constant lowering of costs in industry and the sharing of such savings with consumers is the vital process in a capitalistic system whereby standards of living are improved through the production and distribution of more wealth and a maximum employment of labor is achieved.

"On the other hand, if very large corporations are actually less efficient than medium-sized or small corporations in American business, and if, in addition, the large size of such corporations enables them to suppress competition and thereby to frustrate the greater efficiency of medium-sized or small business, this size is indefensible from the standpoint of a sound and progressive capitalistic system. Under such conditions the effect of large size in business is to protect, conserve, and perpetuate inefficiency in business and to destroy capitalism."

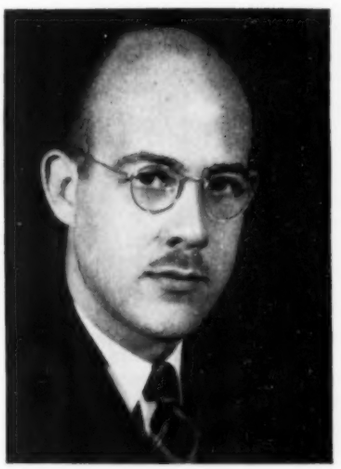
L. A. Appley Named 'Expert Consultant' To Train Civilians

N. P. N. News Bureau

NEW YORK, March 17.—Lawrence A. Appley, in charge of education and training for the Socony Vacuum Oil Co., has been named Expert Consultant to the Secretary of War in the training of civilian personnel for the War Department. He has been granted a company leave of absence and will start his duties in Washington, March 12.

Mr. Appley attended Ohio Wesleyan and Ohio State University as an undergraduate and was on the Colgate University faculty for 3 years. Since 1930, he has been with Socony Vacuum in industrial relations work. Mr. Appley is a member of the American Society of Mechanical Engineers.

His new task will be to undertake a survey of the problem of preparing many thousands of civilians for service in the War Department, especially in the air corps and in the arsenals. Mr. Appley will also coordinate the needs of the War Department with those of other Departments and of industrial concerns working on defense contracts.



L. A. Appley

Anti-Trust Answers Extended 1 Month; Discuss Settlement

(*Continued from page* 11)

of agreement for tentative settlement of transportation and marketing issues has not been reached.

'Injunctive Decree' Cited

Oil company attorneys also are said to have suggested Justice Department might enjoin certain trade practices, but substantial differences are reported to exist between this proposal and the economic reorganization of transportation and marketing contemplated in complaint filed in oil suit Sept. 30, 1940.

Use of an injunctive decree which would enjoin specific practices rather than a consent decree enjoining defendants from using such practices has been discussed as a means of settling the case, it is further reported.

Lawyers familiar with anti-trust laws, while stating there are certain procedural differences, say effect of an injunctive decree (also known as a civil decree) is the same as a consent decree, since both are enforceable by contempt of court proceedings. (Some attorneys contend effect is identical; others think injunctive decree possibly might be somewhat broader in its application to persons not a party to the suit.)

Any agreement oil company attorneys and Justice lawyers may reach as a basis for settlement of suit, is subject to approval of both oil companies and Assistant Attorney General Thurman Arnold, it is said.

Approached for comment on negotiations, Mr. Arnold stated there was nothing he could say.

Court Seeks Witnesses In 1st Madison Case

N. P. N. News Bureau

WASHINGTON, March 18.—Justice Department reports it was required on March 14 to supply court with list of witnesses for retrial of remaining 10 defendants in the first Madison Oil Case (buying program), which goes to trial May 12, as ordered last month by Federal Judge Walter C. Lindley.

Defendants remaining in case are: Standard Oil Co. of Indiana; Cities Service Co., Edward J. Bullock, vice-president, Indiana Standard; A. G. Maguire, chairman of board Wadhams Oil Co.; Harry D. Frueauff, and H. E. Brandli, vice-presidents, Cities Service Export Oil Co.; O. J. Tuttle, tank car sales manager, Empire Oil and Refining Co.; Harry J. Kennedy and Edward Karstedt, vice-president and former vice-president, Continental Oil Co.; Alexander Fraser, president, Shell Petroleum Corp.

Justice Department also reports defendants in Chicago gasoline pump anti-trust cases are being required to file all preliminary motions with reference to indictments, by March 31.

Circuit Court Gets Twin Ports vs. Pure Treble Damage Suit

Special to N. P. N.

KANSAS CITY, Mo., March 18.—Federal judges sitting in the eighth Circuit Court here March 20 will hear an appeal from a district court's directed verdict for the defendant in the case of the Twin Ports Oil Co. versus the Pure Oil Co., the first "jobber suit" for triple damages arising out of the Madison cases.

District Court ruling, made by U. S. District Judge Gunnar H. Nordbye in Minneapolis on Oct. 15, 1940, held that Twin Ports had failed by proof to establish any damages as a result of the conspiracy of which the major oil companies were convicted in 1938. Judge Nordbye, in the course of the opinion, pointed out that the margins under which the Twin Ports company had conducted its business in Duluth had not been narrowed by the reason of any increase in the tank car prices of gasoline to jobbers.

David T. Searle, Houston, will appear as attorney for Pure and Ernest Michel, Minneapolis, is attorney for Twin Ports.

Tank Truck Strike Ended at Canton

N. P. N. News Bureau

CLEVELAND, March 14.—Tank truck drivers in Stark (Canton) and Tuscarawas counties, Ohio, who walked out March 7 after demands for wage increases were not met, returned to work at noon March 12. Before strike was finally settled, virtually all stations in Canton, with the exception of track-side outlets had been out of gasoline.

Wages of tank truck drivers in these 2 Ohio counties were increased 6.4%, it was reported here. Union had demanded a flat 10% increase.

Canadian Oil Controller Appoints Stewart, Deputy

OTTAWA, March 10.—J. L. Stewart, general manager of Canadian Automobile Chamber of Commerce, an association of automobile manufacturers, has been appointed deputy Oil Controller for Canada.

Domestic Gasoline Demand Increases 12% in January

(*Continued from page* 11)

hand, residual fuel demand was 3% higher. Domestic demand for lubricating oil recorded a marked increase, being 15% above a year ago.

Yield of gasoline continued its decline in favor of distillate fuel oil. Gasoline yield fell from 43.1% in December to 42.8% in January, and the distillate yield increasing from 15.1% to 15.4%.

Crude-oil production showed little change, daily average output in January 1941 being 3,569,300 bbls., compared with 3,565,200 bbls. in December 1940, with 3,563,500 bbls. in November, 1940, and with 3,649,700 bbls. in January a year ago.

Comparatively few important changes in the output of the states occurred in January. California, Kansas, and New Mexico had small gains; Oklahoma, Illinois, and Louisiana, small decreases. Daily average production in Texas was off about 12,000 bbls. from December, all attributable to the Panhandle, where production was off about 20%.

Runs to Stills Up

Further decline in exports of crude (the total of 1,687,000 bbls. was the lowest since November, 1932), was outweighed by increased runs to stills. Imports of crude oil declined materially. Net effect of these changes in supply and demand was to reverse the trend of crude-oil stocks, and in place of a sizeable increase in December, a reduction of about 800,000 bbls. occurred in January, the Bureau reports.

Bureau of Labor Statistics' price index for petroleum products was 50.0 in January 1941, compared with 49.5 in December and 51.7 in January 1940, the Mines Bureau reported.

Revises Bulletin On 'Gas' Pumps

N. P. N. News Bureau

WASHINGTON, March 18.—Revised edition of "Check Your Weights and Measures" bulletin was issued this week by Miss Harriet Elliott, defense commission consumer representative, following recent discovery by NATIONAL PETROLEUM NEWS that bulletin's charge of 51% inaccuracy in Los Angeles County gasoline pumps was based on survey made more than 25 years ago. (NPN, March 5).

Revised bulletin differs from first edition (NPN, Feb. 26) by stating that survey was made 25 years ago and also by stating survey upon which American Automobile Assn. based its charge that motorists were being robbed by "dishonest operators of retail gasoline pumps" of $20,000,000 annually, was made 12 years ago, in 1929.

W. C. Teagle May Be Named To Defense Labor Board

N. P. N. News Bureau

NEW YORK, March 17.—Reports originating in Washington that William S. Farish, president, Standard Oil Co. (New Jersey) will be appointed a member of the new National Labor Defense Board, expected to be named by President Roosevelt were discounted today by a source close to the Jersey company.

This informant pointed out that it would be more likely that Walter C. Teagle, chairman, Standard Oil Co. (New Jersey) would be selected. He also recalled that Mr. Teagle had had experience through his connection with a similar board during the NRA code days, and that Mr. Farish is chairman of the National Committee for Safeguarding Oil Storage of the American Petroleum Institute.

Grand Jury Probing Japanese Oil Deal

N. P. N. News Bureau

NEW YORK, March 17.—A federal grand jury is now investigating an alleged swindle to cheat Japanese interests out of several million dollars in a deal for 7,000,000 bbls. of East Texas crude, Maxwell S. McKnight, assistant U. S. Attorney, said here today.

Named in a complaint filed March 17 were Januar D. Bove, described as a broker with offices at 25 Broad St., who was arraigned here before U. S. Commissioner Cotter; Robert H. Lightfoot, president of International Oil Co. of Texas, who was taken into custody in Dallas, and Harry Bergman, president of Bergman Petroleum Corp. of Hollywood, arrested in San Francisco.

Complaint charges that early in 1939, Bove, Lightfoot and Bergman issued 100 fraudulent certificates in the name of Upshur Pipe Line. Each certificate, signed by Lightfoot, called for delivery of 70,000 bbls. of East Texas crude, and they were forwarded through an involved draft set-up to New York banks to make the deal look legitimate. Hitch occurred when the Japanese business men refused down payment until the oil had been delivered.

THE EDITOR'S PAGE

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and Publisher. Penton Publishing, Cleveland, O.

"This Brings IT Awfully Close" Said the Mother with the Fumbling Hands

This editorial is quite empty of technical and commercial information relating to making a profit in the oil business. But these are days when sometimes we can lay aside plain business discussions in business forums, such as the pages of this business paper. Perhaps we will see better if we do step aside from our businesses for a moment.

So, will you come and sit with me in the gothic columned grandeur of a great cathedral on a recent Sunday afternoon? A faint winter's four o'clock sun brightens a yellow window high up in the vault of the chancel and sharpens the red, white and blue of the flag on its standard beside the high marble pulpit. It also brings out the colors of the regimental standard at the side of the lectern across the chancel.

The flags are there for that ancient ceremony of Church and State, to be blessed as they go out to the world of battle to lead the cause of God and Country.

I, with no sons to march behind those flags, am there with my wife, to give such aid and comfort as one may by his presence to a mother at the far end of the pew who came to witness the blessing of her boy's regimental colors. He is sitting in the awesome nave with 500 others in brown cloth and leather and brass buttons.

Cathedral naves always seem awesome. They envelop so many hopes and fears of so many millions of people. They stretch so high into the heavens, so rather indistinctly upward. And they are pierced by shafts of light from the varied colored stained glass windows, much as life itself is. And at the nave's distant head is the Altar of Brilliant Light and Hope. No matter how many are in that space with you, it always seems vast and far reaching way out into the unknown, and one is quite alone with his own hopes and fears.

The mothers brought their fears, and certain secret hopes, as they filled the transepts and sat alongside of that high nave where their boys were in uniform. The mothers craned this way and that, each to see what her boy was doing, while the boys kept their eyes to the altar and to the Bishop and clergy in white surplice and purple cassock and red stole. In the bright lights of the altar, these Servants of the Church were asking the benediction of the Lord God of Hosts upon these boys, on what may be their last Sunday at home for a long time, perhaps a very long time and maybe even an indefinite time for some.

Another mother next to me seemingly unaccompanied by husband or friends, fidgeted and squirmed and stood on tiptoe to see that boy of hers out in the great church. She fumbled with prayer book and hymnal. She could not find the place for the service and she could not keep her thumb in the Book of Common Prayer when I found the place for her.

The pomp and ceremony of a cathedral's long processional of acolytes, choir boys and priests, emerged from the gloom of the cloister beside the chancel and swung through the aisles and then up the steps toward the altar and to the choir stalls on either side. Mothers for centuries back into time, with their hopes and their fears, have watched such processionals on countless thousands of occasions.

The lone mother with the fumbling hands next to me kind of jumped and then whispered in a strained tone:

"This brings IT awfully close, doesn't it?"

That was her only comment during the hour long service of Blessing the regimental colors of her boy and of the boys of 500 other mothers.

She fumbled and strained and fidgeted as we stood for hymns and knelt for prayer and sat for the Bishop's sermon that said the soldiers should be of great courage as "the God of Your Fathers has gone before you into this new situation," —his text from the prophet Isaiah.

At the start of the recessional, she hurried down the aisle beside the long nave to see her boy march out to the waiting trucks and tanks.

Her boy and the other boys also, actually were not leaving town for several days. But one knew the single thought that was in the minds of all those mothers and families and friends. Their sons' departure from this great cathedral was something official, something final. The Church was saying, as the Church has said to hundreds of millions of soldiers for centuries, its last goodbye after bestowing, as best clerical pomp and architectural grandeur can, the Blessing and Encouragement of the Almighty on the Church's sons, whether Catholic or Protestant, Jew or Gentile, White, or Yellow or Black.

Yes, the approaching long procession of Church glory did "Bring IT awfully close" to every one. And "IT" seemed to be still closer as the last "Amen" died away far behind the chancel at the end of the recessional. There followed a stillness through the church, that seemingly lasted for minutes, such a stillness as one would not expect from several thousand people.

The mother who had been beside me had gone with the start of the recessional, and the mother at the other end of the pew just stood in the silence and her approaching loneliness.

The crash of the organ's postlude ended that silence and started the soldiers out into the winter's dusky light and into their waiting tanks and trucks and scout cars. Mothers and fathers and families and friends pushed silently alongside to the cathedral doorways and poured over its high steps and down to the street to watch their boys depart, for good or ill, with that Blessing of the Lord God of Hosts.

* * *

That which all came to behold, that which was blessed by The Church, were still in front of the Altar, the Colors of Country and Regiment. Their bearers were flanked by guards armed with submachine guns, in ominous prophecy.

The Clergy, the Servants of the Prince of Peace, had finished their job and, with the panoply of The Church, had passed from the chancel and out of sight, leaving at the foot of the Altar of Peace these motionless figures of War with their flags and their guns.

I, a bystander, stood alone at the far end of the almost empty church. The backs of the nervous and fearing mothers and families blocked out my view of the soldiers who had just departed with the Blessing of The Church.

But there, in the opposite direction from these sons of every one's heart interest, before the high altar that inspires Hope and Faith for all mankind, still stood that which The Church had blessed, the four silent figures of war and their Colors—The State in the Presence of Life Everlasting and on guard for the Peace and Liberty of our civilization.

Altar and chancel lights blazed, a yellowing sunlight streamed in, and there was Glory there.

For minutes this picture shown down the almost empty cathedral.

For many hundreds of years this picture has lightened the cathedrals of the world and the hearts of peoples everywhere.

As one gazed at this glory of Church and State, though terrible its portent, it did seem that that which is lasting is in hearts and minds and that the departing mothers and their sons did partake of "that peace which passeth all understanding."

In came an officer.

He bared his head to The Church as he crossed the threshold. He marched up the center aisle and gave a military salute to The Church and The State, to the Colors and their guard and to the High Altar of Hope.

He turned, and that which was of the State passed back down the aisle having received from that which is the Church all that the Church could then give. The altar lights dimmed as the Colors went

through the open doorway to the world of war. Bugles sounded. The colors were stepped in their holders with the latest in modern high speed, gasoline driven tanks. The color guard climbed in and the procession of the world's most death-dealing fighting equipment was led out the street to armory and from there, in a few days, to camp in Mississippi and from there to that Great Adventure on which, the Bishop said, the God of Our Fathers had already gone. The Colors, bearing his Blessing, were but following Him.

The mothers and fathers and families and friends, on the Cathedral steps and in the street, were a silent, lonely, crowd, when the last dark green truck had disappeared down the street.

More than the Blessing of Church went with those Colors.

* * *

So far this editorial is about Church and State and mothers. But how about the boys whose brown uniforms lightened that vast nave for an hour as they faced their Colors of War and the Altar of Hope and Faith?

They went for something, these boys. It was "their" service. We gathered that from the boy of the mother who did not want to sit alone as The Church said its benediction upon him. That boy is the driver of one of these new tanks of modern destruction. He is just like all the other million and a half soldiers the country is calling up. He said the other boys considered it "their" service too. They had looked forward to it. It was "something" to them.

We did not pursue the thoughts of this boy and his associates for greater definition. But we doubt if what the boys got out of "their service" was exactly that which their mothers got, the mothers who fidgeted and fumbled with their prayer books and whispered "this brings IT awfully close."

We asked about the new tanks and the boys' talk quickly turned down the road where their Colors were leading them. These tanks handled "fine"; you could get 65 miles an hour out of them and this one boy thought "his" tank would do 80 maybe; and the still newer tanks just coming out would "knock the spots off" these old ones. Here is where the oil industry came into this picture but no matter how important is this industry's contribution to the cause, it is but incidental to the great human picture.

* * *

As I said at the beginning, this editorial may not help one to sell more gasoline nor to solve any other problems of this oil industry. But perhaps you were sitting with me in that cathedral the other Sunday afternoon. I forgot about gasoline and lube oils and greases and still gases that will be broken up into all sorts of things to make TNT for explosives and rubber for tires and rubber for airplane tanks to make them bullet proof, and fuel and diesel oil for the great ships of war, and I forgot about vexing government regulations and other business cares.

As we sat there, that is if you came with me into that pew that faced a bit of sun which yellowed its way through a high stained glass window and lit up those flags, perhaps you too turned your attention to that mother whose nervous hands rumpled the pages of the Book of Common Prayer, and perhaps you too went with her and all the other mothers down the aisle to see her boy as he left the ceremony of The Church behind to begin the Adventure of War.

If you have a son for this war, then probably you did not stay with me to see the awesome inspiring tableau of Colors and Color Guard before that High Altar of Faith and Hope. A wonderful sight. God had blessed them for their sons and for your son, and for the Peace and Hope of all men.

But you are out with your son, in the dying light of a day of Peace watching him climb into a dark green truck of War.

But I feel sure that the Bishop's last words are with you, as they were meant to be for all the years. His words may be your best hope for a long time to come. The Bishop raised his hands and he bade the nervous mother alongside of me, and the silent mother at the other end of the pew and all in that cathedral, and he, I know bade you too, as well as all the families and their sons,—

> "The Peace of God which passeth all understanding keep your hearts and minds", and that His Hope and Faith "remain with you always."

"Yes, "This brings IT awfully close" for all.

DEATHS

William W. Tarbell

William Walter Tarbell, 80, pioneer in Pennsylvania's oil industry who helped organize the Pure Oil Company of New Jersey, a forerunner of the present Pure Oil Company, died of pneumonia on March 12 in Bridgeport, Conn. He was a brother of Ida Tarbell, the writer.

Mr. Tarbell was born in Wattsburg, Pa. on July 1, 1860, the son of Franklin S. Tarbell, a leading producer in Eastern oil fields and a veteran of the War of 1812. William Tarbell grew up in the Titusville area, was graduated from Titusville High School, and later from Meadville College, in Meadville, Pa. For four years he read law and was admitted to practice but in 1887 he began his 30-year active career in the oil business.

One of Mr. Tarbell's first tasks was to organize the Valley Oil Line, a pipe line which carried oil from the Grand Valley field in Warren County to Titusville. In 1896, he became associated with the Producers Oil Co. in Philadelphia as auditor. He served in the same post with the United States Pipe Line Co., the first line to transport refined oil through pipes, and with the Producers and Refiners Pipe Line Co.

During this period, he helped organize the Pure Oil Co. of New Jersey, and became treasurer and general manager of the newly formed independent company in 1902. A decade later, Mr. Tarbell resigned his position to become affiliated with Gulf Refining Co. He retired from active business in 1918.

William Tarbell's interest in the petroleum industry was great, and he is known to have contributed much data to his sister's book "History of the Standard Oil Companies", first published in 1904. He found time for his several hobbies of hunting, fishing and golf, and he was an accomplished artist.

* * *

James A. Carroll

Funeral services for James A. Carroll, Tulsa, 73-year old superintendent of the claims department of Sinclair-Prairie Oil Co. were held in Tulsa March 10.

A 26-year veteran of Sinclair-Prairie and predecessor companies, Mr. Carroll was widely known throughout the Mid-Continent. He died March 7 at his home, with death attributed to a heart attack.

He left a widow and four children, including James A. Carroll of New York City, treasurer and vice president of Pan-American Petroleum & Transport Co.

* * *

John Kay Holland

John Kay Holland, infant son of Mr. and Mrs. Mel Holland, Kenosha, Wis., died March 3. Mr. Holland is president of National Assn. of Petroleum Retailers.

Oil Wealthy Indian Dies In Air-Conditioned Cabin

Andrew Harden, an Indian who amassed a fortune in oil, died March 13 in his air-conditioned log cabin near Ada, Okla. He was 86 years old. Civilization made but few imprints on his mode of life, notwithstanding his great wealth. He placed much faith in his large fire-place for warmth and his carbide plant for lights and cooking fuel. But two years ago, his resistance to civilization crumpled sufficiently to allow his cabin to be air-conditioned.

S. J. Rotondi

Funeral services were held last week for S. J. Rotondi of Mount Pleasant, Tex., who died at Dallas March 12. He was co-discoverer of the Hawkins, East Texas pool and got up from his bed in the Dallas hospital on Jan. 10 to attend the celebration commemorating discovery of oil at Hawkins. He returned to the hospital where he died. Burial was at Brooklyn, N. Y.

Bradford Oil Refining Co. Resumes 'Gas' Deliveries

CLEVELAND, March 17.—Bradford Oil Refining Co. is starting gasoline deliveries in Bradford and surrounding territory, in a move aimed at the resumption of operations of the company's refinery at Bradford, according to John von Carlowitz, vice-president and treasurer.

Louisiana National Plant Begins Test Runs

Special to N. P. N.

NEW ORLEANS, March 17.—Test runs were being made this week at the new Eola, La. natural gasoline plant of the Anchor Gasoline Corp., according to word here.

The plant has a throughput capacity of 32,000,000 cu. ft. of gas daily and will turn out about 35,000 gals. of gasoline and butane daily, it was said.

New values through U O P

There are strange new names in refinery language today and they represent new processes, unheard of till just a little while ago Some of these take up where Dubbscracking leaves off, and go on from there

They differ in operation and in results but they all aim at just one goal—to get more value out of every barrel of crude oil And they do They make products never before derived from petroleum—butadiene, source of synthetic rubber; toluene, vital ingredient of TNT and fighting aviation fuel of superlative power

Besides pyrolytic cracking, Universal's pioneering has resulted in development of:

Catalytic cracking	Isomerization
Catalytic reforming	Cyclization
Polymerization	Aromatization
Alkylation	Hydrogenation

Dehydrogenation

All are at the service of every American refiner, through Universal

They are at the service of the nation

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Oil Caravan News Service

SOMEWHERE IN NEW YORK, March 17.—All goes well with the Oil Men's Caravan, reported "Bedouin" Wotowitch today from his "oasis" at Weaver Shipping and Oil Corp.

And just to prove that he's not talking over the hump of a camel—or through his desert hat—Caravan Leader Wotowitch cites 2 more "solid cars" which have been added to the number that will push through western sands to the annual meeting of the American Petroleum Institute, Nov. 3-7 at the Bay City—San Francisco.

Knowing how the night's desert sands and idle time can gnaw at the souls of oil men crossing the continent, "Dick" has provided varied entertainment, aimed at building stamina and keeping the boys away from their bunks.

Reeling off names of games to be played sounds like a train announcer shouting destinations: roulette, dice, bridge, poker, pinochle, checkers, chess, backgammon and any new ones that may result on the spur of the moment. "Take it from me," says Sand-Blown Caravan Leader Wotowitch, "they all worked on the first 'Caravan'—and how."

Not a Dull Moment

Cocktails every day at 4, radio market and news reports, vocal and instrumental entertainment is all a part of the daily bill-of-fare. At night, talking movies, games for cash prizes, will keep everyone awake.

Numerous stop-offs have been planned to break any approach to monotony, the Caravan Leader promises. "There'll be a stop in one of the most scenic and exclusive spots in the Rockies and another at one of the most interesting spots in the U.S.A. where we'll have luncheon and a dinner dance."

The third stop-off is shrouded in a certain air of mystery, Dick calls it "a city still further west, made famous by both sexes" and says here is the chance to visit it "without legal invitation." Caravaners here will be shown "the whole works."

Leader Wotowitch stresses the flexibility of all arrangements to suit everyone, stating "it's all very special and for you oil fellows only." Oh yes, there will be "better than usual meals."

For additional information on the Oil Men's Caravan, write R. A. Wotowitch, Weaver Shipping & Oil Corp., 2 Broadway, New York City.

Operating Problems Bared By Refiners On the Texas Gulf

HOUSTON, March 15.—Realization from the sale of finished products is insufficient for profitable operation of Texas Gulf Coast plants based on present crude prices, members of the Gulf Coast Refiners Assn. declare in a statement released here this week. The statement reads:

"The Gulf coast non-integrated refining companies are perforce in agreement with the recent statement of a large integrated company to the effect that refining operations are distinctly unprofitable under present conditions wherein the realization from the sale of finished products is insufficient for the profitable operations based on present crude oil prices.

"Further, with respect to the crude oil price situation it is difficult for Texas coastal refiners to compete when prices of comparable crude oils in West Texas and Louisiana are so far out of line on the low side that these distant crudes can be used by the integrated companies owning pipelines at costs below the posted price of comparable crude oils on the Texas Gulf coast. And with the present threat in Austin on the part of the legislature to place a terrific burden on the refiner in the form of a 1c per gal. process tax, and should such a tax develop, additional confusion is certain to follow in respect to crude oil prices, for the refinery cannot operate under such taxation programs and the tax will have to be passed back to the crude oil and the producer."

Gasoline Stocks Increase

Gasoline stocks held by the members of the association March 1 increased 148,723 bbls. over Feb. 15 inventory, to 2,187,488 bbls., but were approximately 1,000,000 bbls. lower than stocks on hand a year ago, according to a G.C.R.A. report.

Stocks of aviation fuel increased only 29,444 bbls. during the period, while motor fuel inventories accounted for 114,220 bbls. of the overall increase. Crude runs were reduced 8511 bbls. daily average to 57.4% of refinery capacity. One non-integrated refiner resumed operations at his Corpus Christi plant, the report said ,while two other independent plants remained shut down.

Diesel fuel and gas oil stocks were reduced the last half of February, while stocks of other products increased, it was said.

Tennessee Refinery Planned at Memphis

N. P. N. News Bureau

MEMPHIS, March 17.—Construction of a new refinery for Tennessee is expected to begin here soon, with the first unit in the program scheduled for completion about May 1. The first unit will include a skimming plant and terminaling facilities to handle incoming Tinsley, Miss., crude and to utilize water shipment on outbound petroleum products, it was said.

Second unit, consisting of a cracking unit, is expected to be completed in 6 months, according to report. Estimated cost of the finished plant is said to be about $500,000.

Gasoline from Sardines Is the Latest 'Twist'

CLEVELAND, March 18.—Gasoline from sardines is the latest "oil discovery," according to an Associated Press dispatch from Tokyo. However, report failed to say whether this is natural gasoline, a straight run product or derived after the sardine is "cracked." But plans are already being made in Tokyo "to produce sardine gasoline on a large scale by summer." Octane number was not disclosed.

Higher Station Wages Sought in California

N. P. N. News Bureau

LOS ANGELES, March 15.—Union demands for higher wages are reported being made here from a service station lessee of Signal Oil & Gas Co.

Demands being made by picket members of A. F. of L.'s Garage, Service Station and Auto Park Union are said to include a wage scale of $31.20 per week for pump men, $33.50 for combination pump-lube men, $36 for expert lube men, and $33.50 for wash-rack men. Demands for the 48-hour week, with time and a half for overtime, and 7 holidays a year, with pay, are also said to be included.

Preliminary organization work by union officials is reported in the Los Angeles harbor and Long Beach districts.

Ethyl Announces Changes in Sales Department Personnel

Richard C. Murphy *Alan Tully* *Joseph A. Costello*

N. P. N. News Bureau

CLEVELAND, March 15.—When Richard C. Murphy was named Western Regional sales manager of Ethyl Gasoline Corp., Joseph A. Costello, Atlanta division manager since 1937 was appointed manager of the New York division, succeeding Mr. Murphy.

Alan C. Tully, formerly assistant manager of Dayton division, replaces Mr. Costello at Atlanta. Sidney T. Pruitt has been appointed assistant manager at Dayton. All appointments are effective immediately.

WITH THE ASSOCIATIONS

Growth of Tire, Battery Line Viewed by Dixie Distributors

N. P. N. News Bureau

CLEVELAND, March 15. — Rapid growth of buying tires and batteries by members of the National Dixie Distributors, "has reached a volume never before anticipated" and as a result, discussions on this topic occupied much time at the March 10 meeting at Fort Worth, Tex., states Maxine Stone, assistant executive secretary.

Due to interest evidenced in the Dixie plan by marketers in some eastern and mid-western states, plans were formulated and steps taken for expansion of this plan. States from which inquiries were reported to have been made included Pennsylvania, New York, Virginia, Kentucky, Georgia, Minnesota and others.

Glidden, Gray Elected

New officers elected at the Fort Worth meeting are: Walter L. Glidden, Clay Center, Kans., Glidden Oil Co., first vice-president; and Odis H. Gray, Hillsboro, Tex., Independent Oil Co., second vice-president. S. H. Arnold, Fayetteville, Tenn., general manager of Elk Oil Co., was re-elected president.

J. E. Guilbault, Chicago, South Side Petroleum Co., was appointed to fill the vacancy created by the resignation of Emil L. Wallman, Milwaukee, who disposed of his interests in the Milwaukee Badger Oil Co. to his partners.

Upon resignation of Executive Secretary-Treasurer Claude E. Lewis, who retired from the oil business due to ill health, the board voted to continue the operation of the national office at Hillsdale, Mich., under the management of Miss Maxine Stone, who has held the position of assistant executive-secretary for the past 2 years. P. R. Kempf will act in an advisory capacity to the national office.

Present members of the executive committee are: Mr. Kempf, Ann Arbor, Mich., Staebler-Kempf Oil Co.; A. F. Geyer, Waterville, Kans., Dixie Oil Co.; Mr. Glidden, Mr. Gray, and Mr. Guilbault.

Members voted to hold the next meeting Oct. 1 at Chicago in conjunction with the convention of the National Oil Marketers Assn.

Officers of Dixie Distributors

S. H. Arnold *O. H. Gray* *W. L. Glidden*

Lubricating Trends, Oil By-Products To Be Discussed at W.P.R.A. Meeting

N. P. N. News Bureau

TULSA, March 17.—Pitched to current refinery problems and the desire to meet emergency defense needs of the government, the technical sessions at the 29th annual meeting of Western Petroleum Refiners Assn. at Hot Springs, Ark. April 16, 17 and 18 will center around trends in lubricants and the manufacture of specialty by-products.

Modern trends in lubrication will be discussed by W. H. Oldacre, Chicago, D. A. Stuart Oil Co., whose paper will deal with oxidation resistance, oxidation inhibitors and additives which affect detergency, stability and lubricity of lubes.

A second paper on lubricants will be presented by Malcolm H. Tuttle of New York City, Max B. Miller Co. This paper will deal with the extraction of lubricating oils by the solvent processes.

Lube symposium, featured by the two papers on lube trends and followed by round-table discussions, is scheduled for April 17.

Petroleum By-Products

By-products of petroleum will be the keynote of the April 18 technical session, with M. J. Dorcas, Cleveland, O., manager of Specialty Department of Carbon Sales Division, National Carbon Co. and I. E. Lightbown, New York City, Standard Oil Development Co., as featured speakers.

"Carbon as a Material of Construction for the Petroleum Industry" is the title of Mr. Dorcas' paper. He will discuss the fabrication of a material from by-products, such as coke and pitches, into carbon and graphite. These carbon products may be machined into pipe, beams, tower packing, brick, towers and piston rings, it was explained. Little is known of this material in the petroleum industry, the announcement said, and new developments in refining technology make the material especially interesting at this time.

Technical sessions were planned by the association's manufacturing committee, headed by L. D. Mann, Bartlesville, Cities Service Oil Co.

Donnell Named Chairman Of API Power Committee

NEW YORK, March 17.—O. D. Donnell, The Ohio Oil Co., Findlay, Ohio, has been named chairman of the American Petroleum Institute's Central Power Committee for 1941 of which D. V. Stroop, of the Institute's staff, is secretary.

Members of the committee, which was appointed by William R. Boyd, Jr., Institute's executive vice-president, are: C. C. Ashley, Shell Oil Co. Inc., San Francisco; Frank Fox, Standard Oil Co. of New Jersey, Elizabeth, N. J.; Lester M. Goldsmith, Atlantic Refining Co., Philadelphia; W. C. Poole, Sinclair Refining Co., East Chicago, Ind.; R. C. Powell, The Texas Co., New York; F. E. Richardson, Great Lakes Pipe Line Co., Kansas City, Mo.; A. H. Riney, Phillips Petroleum Co., Bartlesville, Okla.; Richard Sanders, Magnolia Petroleum Co., Beaumont, Texas; Warren A. Sinsheimer, Petroleum Advisers Inc., New York; and Henry Thomas, Sun Oil Co., Philadelphia.

Compact Members Prepare Information for Cole

OKLAHOMA CITY, March 17. —Members of Interstate Oil Compact Commission delegation to Washington to bring the Cole Committee up to date on activities of the compact, will be Judge J. C. Hunter of Texas, Hiram M. Dow of New Mexico and Andrew F. Schoeppel of Kansas.

In announcing the personnel of the delegation, Gov. Leon C. Phillips, compact chairman, said that the delegation will be afforded an opportunity to appear and report its activities since its last report was filed with the committee.

Texas Extends Membership In Compact 2 More Years

AUSTIN, March 17.—Gov. Lee O'Daniel signed last week a bill passed by the Legislature extending for another two years Texas' membership in the Interstate Oil Compact Commission. Judge J. C. Hunter, Abilene, is the governor's official representative on the compact.

Texas House Almost Passes Strike Bill Forbidding Action for '60-Day Period'

Strike Bill Set Back

AUSTIN, March 17.—Gov. O'Daniel's bill to prohibit strikes against national defense projects was temporarily set back late Monday when House voted to submit it to Atty. Gen. Gerald Mann for ruling on constitutionality.

Special to N. P. N.

AUSTIN, March 17.—Like pent-up water rushing through a broken dam, a yelling, applauding Texas House of Representatives late last week almost passed a startling, drastic bill before most of the members had even read it. The bill was Gov. W. Lee O'Daniel's emergency bill forbidding strikes without 60 day notice and limiting picket lines to two men.

In a surprising appearance on the house floor, Gov. O'Daniel presented his bill in a 11-minute speech in which he said "I want to announce to the whole world today that Texas is going to tolerate none of this imported racketeering, fifth-column, radical violence-producing element, while the national defense program is under way."

Over 50 members of the house rushed to sign the bill, and it appeared for a moment that the bill would be passed then and there without further discussion. Two members, however, pleading for a hearing and deploring "pressure" legislation, got permission from the members to hold a hearing on the measure before acting. The house voted to sit as a committee of the whole Monday.

Provides Heavy Penalties

The bill places a drastic curb on strikes and especially strike violence, and provides heavy penalties for violations. Capitol observers believe some parts of it are unconstitutional and conflict with federal labor laws, but all agreed that the action of the House in rushing to approve those curbs is a barometer of the temper of the people in this section of the nation against national defense strikes. Here are some of the features of the measure as submitted by Gov. O'Daniel:

1. 60-day notice is required prior to any strike or lockout in any industry "essential to national defense or where the employer is operating a hospital, public utility or transportation system."

2. Not more than 2 persons may engage in picketing any industry.

3. It shall be unlawful for any person to try by force, violence or threat to prevent any person engaging in any lawful work. This would be considered a felony punishable by a 2-year penitentiary sentence.

4. It shall be unlawful for any person "acting in concert with one or more others, to assemble at or near any place where a labor difficulty exists, and attempt by force or violence to prevent any person from engaging in any lawful occupation . . . or to promote, encourage or aid any such unlawful assemblance." This also carried a 2-year prison sentence.

Heavy Fines Provided

Any strike or lockout would be considered a misdemeanor, punishable by a $1000 to $5000 fine per day. When more than 2 persons take part in picketing, each would be subject to a fine of from $100 to $1000 per day.

Gov. O'Daniel told the house that he had just returned from the dedication of the new naval air station at Corpus Christi, the nation's biggest, and found that naval, military and defense preparations are threatened by strikes and labor disorders.

Gov. O'Daniel said "I want to serve notice on the world, as governor of Texas, that there are not going to be any strikes or lockouts in the national defense industries or any essential industries in Texas during the time of this emergency, without it proving very unprofitable to those who engage in such strikes and walkouts.

Texas has never been a strong union-labor state, and has viewed with alarm the increasing number of strikes and threats of strikes in army camps and other national defense projects.

Representatives of labor unions immediately condemned the bill as un-American and anti-labor, and said they would bring delegations before the House hearing to oppose it.

Strike Threatened At Texas Refinery

Special to N. P. N.

HOUSTON, March 17.—Conference between representatives of Shell Oil Co., the Oil Workers (C.I.O.) Union and a U. S. Labor Department conciliator was scheduled late today following refusal of Shell to grant a 10% increase in salaries to union workers at its Houston refinery. A representative of the National Defense Advisory Council may sit in on the conference, it was said. Union had voted to strike should negotiation of their complaint against wage scale and so-called "systematic discrimination" against members, fail.

Meanwhile, union representatives charged Shell was stalling for time awaiting action on Gov. O'Daniel's proposed legislation that would prohibit strikes in national defense industries without 60 days advance notice.

In statement issued by Dr. R. H. Wasser, Shell's refinery manager, Shell reports it raised salaries of 500 refinery workers March 1; that Shell's wage scale was "substantially above" that of its competitors in the area; and that the company was prepared to meet any increase by other industries in the Houston area.

Voluntary Curtailment 'Is On Trial' Says Bell at California API Meeting

N. P. N. News Bureau

LOS ANGELES, March 13.—Voluntary curtailment of crude oil production "is on trial", declared A. H. Bell, Continental Oil Co. and chairman of the Conservation Committee of California Oil Producers, before about 500 members at the March 11 session here of the Pacific Coast District Division of American Petroleum Institute.

Mr. Bell reached this conclusion from viewing efforts being made at some sort of statutory control, and outlined fundamental reasons for over-production and the necessity of curtailment as a conservation measure.

Among the causes of overproduction, Mr. Bell mentioned the migratory nature of underground petroleum reserves and the archaic "law of capture" rulings of the courts that have forced holders of competitive oil lands to develop those lands as fast as discovered. These conditions have brought alternating periods of feast and famine in the matter of supply and demand. With the tremendous growth in the volume of oil consumed and the advance in technical knowledge regarding storage losses, the holding of surplus supplies in the ground for future use has been found advisable in the interests of conservation. Summarizing his conclusions, Mr. Bell said:

"The scarcity of new field discoveries in the last 2 years indicates that the future outlook for California producers is more favorable than it has been for some time. During the last year, the state produced 223,881,712 bbls. but, in spite of new drilling, the net reserves of the state were approximately 15,000,000 to 20,000,000 bbls. less at the end of the year. However, an examination of storage figures indicates that we still have to "pay the piper" for our excesses of the past, before we can look for increased allowables.

Voluntary Plan 'On Trial'

"When one considers the pressure that is being brought for some sort of statutory control, either federal or state, it is evident that voluntary curtailment is on trial and must make good through full compliance or revert to danger of dictatorship through law, or 'survival of the fittest' through abandonment of any control.

"Some few operators who may pride themselves on being rugged individualists or being clever in failing to follow the voluntary curtailment plan would feel less proud if they could see themselves in the mirror as a small group who are currently depriving each of the small operators of the state of a barrel or two more per day—production that would be allowed these small operators if adherence to the recommended schedules were complete."

Officers Elected

Following were elected district officers for the year 1941: Bruce H. Robinson, General Petroleum Corp., chairman; R. W. Borden, Barnsdall Oil Co., vice-chairman; for the Coastal district; Paul E. Lehr, Shell Oil Co., vice-chairman for the San Joaquin Valley; E. L. Davis, The Texas Co., vice-chairman for the Los Angeles Basin; W. G. Corey, Pacific Gear and Tool Works, treasurer; and D. S. Kilgour, secretary. R. N. McMaster, Chanslor-Camfield Midway Oil Co., retiring chairman, was elected chairman of an advisory committee of 24 members.

At the dinner meeting, Arthur H. Young, visiting lecturer in industrial relations at the California Institute of Technology, spoke on "Broader Concepts of Industrial Relations." Carl A. Young, national secretary of the Institute division of production, spoke briefly of the accomplishments of the oil industry and its ability to meet any and all calls upon it for national defense.

Special to N. P. N.

TALLAHASSEE, March 12.—Florida's gasoline consumption totaled 39,779,675 gals. in January 1941, representing an increase of 8.2% over the same month of 1940, when the total was 36,503,876 gals., according to state tax officials.

Illinois Lawmakers Again Considering State Oil Control

Special to N. P. N.

SPRINGFIELD, Ill., March 17. — In preparation here is a bill providing for proration of production and regulation of the Illinois oil industry which will be offered soon by Rep. Lloyd Harris, Granite City, Ill.

The bill will propose a 3-member state oil and gas commission, named by the governor, "to have jurisdiction over all matters relating to conservation of oil and natural gas." Members would be appointed by the governor for 6-year terms at salaries of $6000 each per year.

Harris said today that the bill is like one offered in the last session by Rep. Tom M. Garman, Urbana Democrat, which died on the speaker's table because members of the House believed the subject of proration was "too hot" to handle just prior to an election.

Under Harris' bill, the proposed commission would act in the nature of a separate commerce commission for the oil industry, with sweeping powers of investigation into waste. It also would set up its own rules for regulation of the oil and gas production.

Enforcement Measures

The Harris bill also prohibits waste of oil or gas reserves and would empower the proposed commission to appoint any employes such as geologists, engineers and inspectors as are necessary for enforcement.

It is expected that the chief point of controversy in the bill will be the duty it gives the board of limiting the total amount of oil or gas which each well may produce and allocating allowable production of each. Harris said that the main purpose of such provisions is to cut production of each well in an equitable manner so that prices for the products will be constant and so that reserve will be conserved on the basis of market demand.

Harris bill favors small producers with "slow-flowing" wells by setting the minimum allowable production at 20 bbls. per day. In the Garman bill, the minimum was 40 bbls. per day.

The Harris bill also sets up penalties for sale, transfer, refining or handling of so-called "hot" or illegal oil produced in excess of production limits set by the commission.

NPN's Log
On Oil Legislation

Oil legislative information, summarized below, is based on reports deemed reliable although NATIONAL PETROLEUM NEWS assumes no responsibility for the accuracy or completeness of this information.

CONGRESS

CHANGED STATUS

HR-3981, Scrugham, Nev.
Includes following appropriations for Navy fuel oil for fiscal year 1941: fuel oil, $13,576,239; diesel oil, $1,592,869; motor gasoline, $197,773; aviation gasoline (for motor boats) $22,083; total, $15,588,719—up $2,572,989 from this fiscal year. Passed House and sent to Senate Appropriations Committee.

BILLS INTRODUCED

Arkansas

S-334, Houston
Substitute for S-137. Levies privilege tax of 2c per 1000 cubic ft. on natural gas on which no severance tax has been levied. To Revenue and Taxation Committee.

Iowa

S-501, Motor Vehicles Committee
Exempts from motor vehicles fuels tax 2 gals. in cars being towed across state. To Sifting Committee.

Michigan

H-272, Hooper
Regulates retail selling and advertising of motor fuels. To State Affairs Committee.

H-290, Higgins et al
Prescribes maximum rates chargeable for natural and artificial gas. To Labor Committee.

Minnesota

S-984, Well et al
Same as H-849. Provides for uniform inspection fee on petroleum products. To Motor Vehicles and Motor Tax Laws Committee.

Missouri

HJCR-25, Ford
Fixes motor fuel tax and state registration fees on motor vehicles and abolishes minimum gasoline taxes.

H-293, McGee et al
Provides for increase in registration fees on certain commercial motor vehicles and for 2c motor vehicle fuel tax until midnight Dec. 31, 1941 and 3c thereafter.

New York

A-1592, Milmoe
Same as S-1297. Regulates transportation of inflammable liquids by motor vehicles. To Motor Vehicles Committee.

Ohio

S-313, Parker
Permits refund of liquid fuel tax on operation of tractors on farms, but not on public highways.

HR-56, Kirkpatrick
Requests Governor to use influence with legislature to remove sales tax on clothes, food, medical supplies, and fuel used in homes.

Pennsylvania

H-824, Williams et al
Provides for regulations by Department of Mines of locating, drilling, casing, production, operation, plugging and filling, and abandonment of natural gasoline and petroleum wells on coal property and elsewhere, for prevention of intrusion of oil and gas into coal mines, and for conservation of oil and gas.

Rhode Island

H-757, Russillo
Licenses and regulates service stations and sales. To Finance Committee.

West Virginia

H-421, Russek
Anti-diversion amendment. To Judiciary Committee.

CHANGED STATUS

Arizona

S-110, Coxon
Limits single unit truck to 35 ft. in length; combinations to 65 ft. (present limit is 33 ft. for single units; 85 ft. for combinations). Passed House and Senate.

H-69, Dudley
Imposes a use tax of 5c per gal. on all motor fuels; requires obtaining a fuel use tax permit; imposes a lien against vehicle. To Governor.

H-70, Dudley
Imposes use fuel tax on fuel imported into state in motor vehicle fuel tanks larger than manufacturers' specifications. Passed Senate.

Arkansas

H-82, Kansas
Chain store tax. Killed in House.

S-212, Byrd
Prohibits strapping, discounting, docking and shorting of crude oil for waste, shrinkage anad other purposes. Passed House.

H-640, Hampton
Fixes license fee for motor vehicles propelled by any fuel other than gasoline. Passed House and Senate.

H-139, Leflar
Regulates gasoline tax within 300 ft. of state line. Passed House.

California

A-2482, Potter
Same as A-2483-4. Regulates sales and distribution of gasoline and other motor fuels. Withdrawn from House.

Georgia

H-41, Chastain
Same as H-42. Grants rights of eminent domain to persons or corporations constructing, running or operating pipe lines for transportation of petroleum products. Killed in House.

HR-44-239 B, Sabados
Suspends collection of gasoline taxes on fuel used for government owned training planes. Passed House.

Idaho

H-304, Ways and Means Committee
Creates Department of Motor Fuels Inspection in Department of Public Works. Passed House and Senate.

S-158, State Affairs Committee
Prohibits carrying of over 20 gals. of any fuel used for motor vehicles in auxiliary tanks of trucks until state tax has been paid. Passed House.

H-228, Highways Committee
Entitles highway and good roads district to refund of motor fuels tax. Passed House.

Indiana

H-221, Copeland et al
Limits height of motor vehicles used on highways to 13½ ft.; limits length to 36 ft.; and combined length to 60 ft. Killed in Senate.

H-326, Abshier, Batman
Amends Truck Act of 1935, sets up new rate-making rules; fixes rates for each class of carriers, and revises control of regulations to conform to national regulations. Passed Senate.

Iowa

SJR-1, Baldwin
Constitutional amendment prohibiting diversion of gasoline tax and other highway funds. Passed Senate.

Kansas

S-269, Assessments and Taxation Committee
Taxes motor fuels 3c per gal. for highway construction. Provides for monthly reports, licensing and posting of bonds; provides for records of all fuel purchased, sold or delivered by all persons engaged in transporting fuel. Passed Senate.

Maine

H-651, Weston
Provides period April to November for inspection of motor vehicles. Passed House.

Massachusetts

H-1701, McDonald et al
Establishes a fuel oils control board in the Department of Labor and Industries. Killed in Senate.

H-935, Skerry
Same as H-915. Eliminates more than one excise tax on motor vehicles and trailers during the same calendar year. Killed in Senate.

S-452, McDonough
Requires persons and corporations storing fuel oil in amounts exceeding 200,000 gals. to furnish bonds. Killed in Senate.

Nebraska

No. 298, Johnson
Requires retail dealers to display signs showing price, tax, and total charge for gasoline separately. Tabled.

New York

A-399, Budget Bill
Same as S-362. Continues emergency taxes, including two 1c per gal. sales taxes on motor fuels. Passed House and Senate.

North Carolina

S-212, Wilson
Removes gross weight limit on motor vehicles now set at 20,000 lbs. for 2 axle vehicles and 40,000 lbs. for those of 3 or more axles. Passed Senate.

H-119, Bryant
Exempts from state tax gasoline used in school transportation. Passed Senate and ratified.

H-445, Stone
Enlarges definition of motor fuels and provides use tax on vehicles not paying motor fuel tax. Passed House.

S-47, Wilson et al
Apportions state funds for town and city highway improvement; appropriates $3,000,000 from gasoline tax and license fees for the fiscal years 1941-2-3. Killed in Senate.

H-388, Abernathey
Changes elected measures of gasoline tax. Passed House and Senate.

North Dakota

H-174, Swanson and Kee
Prohibits sale or use of regrooved tires. Passed Senate.

H-102, Levin
Establishes a state industrial alcohol plant and appropriates $25,000. Passed Senate.

S-158, Brown
Reduces inspection fee on kerosine and gasoline from one-twentieth to one-fortieth cents. Indefinitely postponed.

S-50
Would impose an additional tax of 1c per gal. on motor vehicle fuel. Proceeds to be placed in State Highway Fund. Passed House and Senate.

Ohio

S-71, Gray
Extends liquid fuel excise tax for 2 years to March 31, 1943. Passed Senate.

Oregon

SJR-11, Roads Committee.
Anti-diversion amendment. Passed House.

Texas

H-208, Daniel et al
Agreement to extend Interstate Compact. Passed Senate.

Vermont

H-46, Haskell
Limits gross weight of trucks to 600 lbs. inch of tire width. Present limit is 15,000 lbs. per axle. Passed Senate.

H-205, Jarvis
Forbids operation of motor carriers over 6000 lbs. on highways on Sundays or holidays, except when carrying perishables or newspapers Withdrawn.

Washington

S-54, Lovejoy
Provides for leasing and assign-

ment of mineral rights by lessee of the state. Passed Senate.

S-312, Keller

Provides for excise tax on use of fuel for motor vehicles other than gasoline. Passed House.

H-402, Rules Committee

Places ¼c per gal. excise tax on fuel other than motor vehicle fuel. Killed Senate.

BILLS APPROVED

Indiana

H-6, Beasley

Repeals 1937 tire weight tax for commercial motor vehicles. Passed over veto.

North Dakota

H-82, Austad

Provides for a minimum knock rating on tractor fuel. Approved.

South Dakota

H-275, Metz

Authorizes Public Utilities Commission to regulate size, weight, and load of motor vehicles in places where railroads have been abandoned. Approved.

S-363, Highways Committee

Empowers state treasurer to stop and inspect size trucks transporting motor fuel imported into state.

S-40, Risty

Provides for shorter time for refunds of gasoline tax. Approved.

H-241, State Affairs Committee

Creates oil and gas board to conserve oil and gas and provides regulations. Approved.

Wyoming

S-41, Anderson

Prohibits sale of tractor fuel which does not meet specifications set forth in octane and prohibits use of such tractor fuel in any motor vehicle upon highways; further prohibits such tractor fuel shall not be subject to gasoline taxes. Approved.

S-80, Internal Affairs and Highways Committees

Requires monthly reports of gasoline receipts by wholesalers. Approved.

More Action Reported on 'Oily' Bills As State Bodies Move for Adjournment

N. P. N. News Bureau

NEW YORK, March 17. — Fewer bills were introduced in the state legislatures the past week, but more received attention in either House or Senate of their respective states, as lawmakers started to end the sessions. Indiana reported adjournment sine die on March 11 and Arkansas on March 13 with sessions in West Virginia, North and South Dakota, and Idaho adjourned a few days previous.

Regulations and tax authorizations held the spotlight as many measures on these subjects crammed the state hoppers. A Michigan bill would regulate retail selling and advertising of motor fuels, while a Rhode Island measure proposed to license service stations and sales. One Missouri bill sought to fix motor fuel taxes and state registration fees and abolish minimum gasoline taxes, while a second Missouri proposal asked for an increase in registration fees of certain commercial vehicles and for retaining the present 2c motor vehicle fuel tax until the end of this year, but increasing it 1c to 3c per gal. thereafter. An Arkansas privilege tax bill providing a levy of 2c on each 1000 cu. ft. of natural gas was referred to the Committee on Revenue and Taxation.

Many Bills Favored

Many bills saw action in both branches of the state legislatures this week as the move to sweep all measures one way or another before the sessions adjourned gained momentum. Iowa joined the states of Oregon and West Virginia as the Buckeye state senate passed an anti-diversion bill.

Southwest to North Rate Cut Postponed

Special to N. P. N.

ST. LOUIS, March 17.—Action by Western Trunk Line Railroads on an undocketed proposal for an approximate 1c a gal. reduction in rail rates on light petroleum products shipped in single car lots from Kansas City and McPherson to Minnesota, North and South Dakota has been held up until April 2, reports here indicate.

It was believed in some quarters action was being delayed pending decision in the Petroleum Rail Shippers Assn. complaint expected soon.

Southeast Pipeline Again Gets Setback

Special to N. P. N.

ATLANTA, March 18.—Southeastern Pipe Line Co.'s Florida-to-Tennessee gasoline line received another setback yesterday when a Georgia Senate Judiciary Committee voted 11 to 4 to kill a bill that would vest in the State Secretary and Governor right to grant eminent domain privileges to a project declared by the President to be vital to national defense.

It was said in some circles here this represents about last effort in the Georgia assembly to pass legislation enabling completion of the gasoline pipeline through Georgia to Chattanooga. It was also admitted in some quarters that the scene of action must now shift to Washington where the Cole Oil Investigating committee has promised a review of the Georgia and Southeastern Pipeline situation and its relation to national defense. (See NPN, March 12, p. 11 for more details).

Cleveland's Defense Boom Boosts Gasoline Gallonage

(*Continued from page* 11)

half billion dollars in defense orders will come from private capital.

More Automobiles Sold

Large as Cleveland's manufacturing enterprises have been, the additional expansion will make for big changes in this area so far as the oil industry is concerned. Steady work at the old plants, plus the personnel requirements of the new plants will provide employment for about the highest paid class of workers in the country. Many of them are skilled and the rest mostly semi-skilled at least. This higher-paid class of workers is greatly increasing automobile sales so that with the open weather of spring, Cleveland oil marketers will feel fully the effects in sales volume.

Oil companies in Cleveland did considerable expansion of their marketing facilities last year. Part of this was to supply new residential areas being established "out in the country"; part of it was building of new stations on sites of existing outlets. Several companies are also engaged in programs of improving lubritoriums and sales facilities so that their station operators can offset higher labor costs with increased income from sales of lube jobs and accessories.

This expansion will be continued for some companies at least through this year, it is expected. But Cleveland's sources of supply are quite flexible. Right within its borders is one large refinery, a big incoming gasoline line and rapidly growing tanker transport system on Lake Erie with large terminals in Cleveland and at important points along the shore. Cleveland also draws some supplies from 3 large refineries at Toledo and another at Findlay, Ohio.

Move To Suburbs

Cleveland's population, like in all big cities, is reaching out to nearby farming country, rural villages and small towns. The exodus from the city is leaving large areas of idle land and buildings. Many are being torn down for parking lots. New highways are opening up new areas for commuters. A recent survey showed a quarter million people driving from their homes to work in downtown Cleveland.

Small towns at Cleveland's outskirts, like Euclid for example, have grown tremendously in the past 10 years. Euclid's population was up 41% to 17,800 in the 1939 census. And now with several defense plants being built within its borders, a further increase is expected.

All this is constantly changing the service station situation as well as supply arrangements —new truck routes and bulk plants. The defense boom is speeding up this natural change.

Employment Is Above 1929

Cleveland's employment now is above 1929 peak but there are many new plants, costing millions of dollars, on which construction is just starting. It will be September at the earliest before defense activity in Cleveland "goes into high gear", say local authorities. Still the city's employment index stood at 112 in January, 114 in February. It will be higher in March and continue climbing throughout the spring and summer. Employment peak for 1929 was 112.9.

New car sales the first 2 months of this year in Cleveland totaled 8098 as compared with 6696 in January-February last year. Used car sales for the two months were 30,222; last year, 23,697.

For entire year of 1940, new car sales were 49,523 as against 34,274 in 1939. Used car sales hit an all-time peak, 195,694, in 1940; sales in 1939 were 163,598.

Gasoline gallonage in Cuyahoga county (Cleveland) in 1940 ran well ahead of the state's gain of 7.2%; in fact, several companies had gallonage gains of more than 15% in 1940 over 1939. Cleveland's gallonage gain for first two months of 1941 appears to be running behind the state's rate of increase. However, January and February gains in 1940 were quite high over 1939 for some companies.

For 8 major companies doing about two-thirds of total volume, the weighted average increase for the county in January-February was about 7% above the same 2 months of 1940. State gallonage increase for January was 13.78%; February was not available.

Individual gains for these 8 companies in Cuyahoga county in January-February, as compared with same period last year, were: 14%, 12%, 10%, 9%, 7%, 6%, 6%, and 0%.

Gallonage gains are expected to climb as Cleveland's defense boom gains momentum. With the metropolitan area strung

(*Continued on page* 24)

OIL TRANSPORTATION

Mechanics, Helpers Are Subject to ICC Hours Regulations

N. P. N. News Bureau

WASHINGTON, March 17.—Mechanics, loaders and helpers, including all employes required to ride with the driver while a truck is in operation, employed by common, contract and private carriers, have been found by the Interstate Commerce Commission to be essential to safety operations and therefore subject to the ICC's hours regulations (60 hours a week), instead of the Wage-Hour Division's 40-hour week. Formerly only drivers were under ICC hours rules. Ruling was made public March 12, but became effective March 4.

However, the ICC this week made known that it is planning to hold public hearings during May on the question of proper maximum hours for these employes.

Examiner R. W. Snow, in his report, (See NPN, Dec. 11) proposed to limit ICC hour regulation to loaders and a narrowly defined group of helpers, which would have excluded armed guards.

Snow's report brought a protest from American Trucking Assn's which said ICC examiners had omitted many classes of employes whose work is essential to safety. Association then asked opportunity to present further evidence as to these employes. (See NPN, Jan. 8) Among employes Snow found to be outside ICC jurisdiction were dispatchers, office workers, mechanics, garage employes and armed guards.

Wage-Hour Division, in view of provisions in Wage-Hour Act, takes position that mechanics, loaders and helpers, like truck drivers who are governed by an ICC 60-hour week, were subject to its 40-hour week until Commission assumed jurisdiction.

Broaden Export Licenses

WASHINGTON, March 14. — Export Control Administrator Russell Maxwell this week broadened system of unlimited export licenses for aviation gasoline and lubricating oil now in effect to Great Britain and Northern Ireland (See NPN, March 5) to cover 20 areas in the British Empire.

Exporters, after obtaining permission of British Purchasing Commission, may ship, without individual licenses, providing proper license numbers are placed on declarations.

ICC Calendar On Oil Trucking

DECISIONS

J. B. Harsha, West Union, O., (MC 30472, sub. 2). Application to extend operations as a contract carrier of petroleum products between Leach, Maysville, and Covington, Ky., to points in Ohio and Kentucky, over irregular routes, denied.

Coastal Tank Lines, Inc., Petroleum Transport Co., et al. (MC F 1236) Consolidation of operating rates and property of Petroleum Transport Co., York, Pa., and certain operating rights and property of Warren C. Marshall, Drexel Park, Pa., as Coastal Tank Lines, Inc., York, Pa., for ownership, management, and operation. Approved and authorized, subject to condition.

Gulf Coast Oil Men See Exports Rising

HOUSTON, March 17.—Gulf coastal refiners are studying possible effects of the lend-lease bill on exports of petroleum and products from the U. S., according to reports today.

The barrier created by unfavorable exchange that at one time limited exports of U. S. oil to Britain in favor of other supplying countries with more favorable exchange, would be removed, it was said, if the bill does cover oil.

Exports of petroleum to England would be assembled at North Atlantic ports, it was believed, with Gulf Coast gasoline supplementing supplies at East Coast refineries.

In some circles, it was feared that if all-out aid to Britain included lending of tankers, independent Gulf coastal refiners might suffer an expected shortage of bottoms and face an increase in tanker rates.

Tanker Rates Rise 4 to 5c

N. P. N. News Bureau

NEW YORK, March 17.—Tanker rates for both "clean" and "dirty" tonnage stiffened considerably the past week with rates up as much as 4 and 5c for Gulf-N. Hatteras movement. Two fixtures of boats of 75,000 bbls. each were reported for prompt coastwise loading at 40c for gasoline, 42c for kerosine and 45c for No. 2 heating oil, up 4c from last reported rates on gasoline and kerosine and 5c on No. 2 fuel. Option for Caribbean loading (Aruba and Curacao) was an additional 3c.

Since these last fixtures, increased strength was noted in the market, according to several reports. "We believe that higher rates have been done, in the nature of 50c for gasoline or thereabouts," commented one boat man. A few boats were still said to be available although the recent fixtures have dried the prompt tonnage up considerably.

Two "dirty" boats were fixed during the week at rates in advance of those previously reported. Price for 10-19.9 gravity fuel was 50c, up 5c from last reported and for 30 gravity or lighter was 45c.

Three "off-shore" ships were reported fixed for fuel oil from Tampico to North of Hatteras at 50c, another from Curacao to North of Hatteras also at 50c.

Nebraska-Illinois Rail Rate Cut Dims

N. P. N. News Bureau

TULSA, March 17. — Possibility of a 96.3c per bbl. reduction in rail rates on crude shipped from Falls City, Neb. to Milan, Ill., went glimmering the past week when it was learned Western Trunk Line Committee had recommended the application for a 46.6c a bbl. rate not be approved.

At the same time, it was learned that W.T.L.C. had approved another proposal for a less drastic reduction in rates from the Nebraska origin to the Illinois refining point.

The approved proposal calls for a 55.9c a bbl. rate, but publication of the tariff on this is being held up pending completion of a satisfactory basis of divisions, it was said.

Approval of the proposal was registered by W.T.L.C. despite objections that the proposed rate was believed to be too low and continual publication of such subnormal and depressed inbound rates would have a detrimental effect on existing adjustments as a whole.

"Under these circumstances, we believe a rate as low as 46.6c a bbl. is not justified . . . particularly when we have been led to believe by the producers in the Nebraska field that a market for this crude oil must be secured at those refineries where their principal operation is adaptable to this particular type of crude," it was stated.

API Trucking Group Headed by Leo Huff

N. P. N. News Bureau

NEW YORK, March 10.—The 1941 Central Committee on Automotive Transportation of the American Petroleum Institute has been appointed by William R. Boyd, Jr., executive vice-president, with Leo Huff, Pure Oil Co., Chicago, as chairman. Vice-chairmen are Frederick B. Hufnagle, Jr., Sun Oil Co., Philadelphia; Oscar Lynch, Humble Oil & Refining Co., Houston, and J. W. Sinclair, Union Oil Co. of California, Los Angeles. D. V. Stroop of the Institute is secretary.

Members of the committee are: J. C. Bennett, Tide Water Associated Oil Co., San Francisco; L. A. Carlson, Gulf Oil Corp., Pittsburgh; R. F. Fike, Mid-Continent Petroleum Corp., Tulsa; E. M. Fitz, Shell Oil Co., Inc., San Francisco; Charles J. Foster, Deep Rock Oil Corp., Chicago; L. M. Goldsmith, Atlantic Refining Co., Philadelphia; O. H. Gundlach, Sinclair Refining Co., New

York; T. D. Harris, Continental Oil Co., Ponca City, Okla.; E. W. Jarvis, Standard Oil Co. (Kentucky), Louisville; L. C. Jones, Gilmore Oil Co., Los Angeles; C. T. Kallman, Standard Oil Co. (Indiana), Chicago; H. W. Kizer, The Texas Co., New York; A. L. Knipping, Jr., General Petroleum Corp., Los Angeles; H. B. LeBourveau, Shell Oil Co., Inc., New York; Richard E. Looby, American Oil Co., Baltimore; C. J. Martin, Phillips Petroleum Co., Bartlesville, Okla.; H. A. McKim, Standard Oil Co. of California, San Francisco; M. E. Nuttila, Cities Service Co., New York; T. L. Preble, Tide Water Associated Oil Co., New York; Herbert E. Spear, Refiners Transport & Terminal Co., Detroit; R. J. Whitley, Socony-Vacuum Oil Co., Inc., New York; and J. F. Winchester, Standard Oil Co. of New Jersey, New York.

Wyoming Rail Rates To Be Cut April 5

N. P. N. News Bureau

TULSA, March 17.—Shippers have been advised that on April 5, rails wil inaugurate further reductions in petroleum rail rates from the Casper, Wyo., refining group to Wyoming, Colorado and Nebraska destinations.

Reductions amount to as much as 0.5c a gal. and were proposed to meet truck competition, it was said.

A meeting between southwestern rails and the Western Trunk Line Committee is expected to be called soon to check possible action to be taken by southwestern roads to protect their oil tonnage from Oklahoma, Kansas and Texas to destinations in Wyoming, Colorado and Nebraska.

Cleveland's Defense Boom Boosts Gasoline Gallonage

(*Continued from page 22*)

along the lake in crescent shape for over 30 miles and from 7 to 10 miles deep, in the center, workers travel long distances to their jobs. A recent survey showed 245,026 persons going to work in 139,286 private automobiles as against about 150,000 by car and bus. More than half of the cars entering downtown Cleveland daily are from outside the city proper. County population was 1,217,250 in 1940 census, with Cleveland proper having 878,385.

Industrial areas are scattered widely over Greater Cleveland. For example, Euclid City at eastern edge has been chosen as site for an $11,000,000 airplane parts plant (Thompson Products) and a $16,000,000 plant (Chase Brass) for making shell cartridges. There has been talk of a 200-unit housing project and home construction is booming in Euclid.

Plan Stations in Euclid

Oil companies were quick to see the potential business in Euclid. Of the 8 companies contacted, 3 are seeking sites for stations in that area, one is remodeling an existing station and 2 others seeking leased outlets there.

Several companies are planning to duplicate this year their station-building program of last year in Cuyahoga county. One company, which erected 15 stations on new or old sites in 1940, plans the same number for 1941; another which built 20 last year will erect "about the same number this year." Still another company built 26 stations last year but expects to curtail its building this year. A fourth company started or completed 18 stations in past year. Several other companies reported building 2, 3 or 4 stations. In most instances, stations were built on sites of existing outlets.

Draw Workers from Stations

While the defense boom has provided more jobs and better pay for oil marketers' customers, it is also draining the Cleveland area of skilled and semi-skilled workers. The wage scale of defense industries—about 65c an hour for common labor and 75c to 80c for semi-skilled—is proving attractive to some station employes and lessee operators, too.

Some independent dealers in Cleveland pay their No. 1 helper as much as $35 a week, with second men drawing $25 and better. But there are many dealers paying station attendants $18-$20 or less, according to dealer association leaders.

Ohio Employment Service is suggesting to defense industries that the service trades—especially filling stations—offer a good source for semi-skilled workers. Station men are generally handy with tools and show an aptitude for becoming semi-skilled workers with little training, state employment officials point out. Reports are that one northern Ohio defense industry has a personnel man on the road all the time now soliciting service station men to take jobs in its plant.

Draft Takes Toll

The draft is also having its effect on the labor market in Cleveland. Approximately 10,000 men will have been called up by Cuyahoga county draft boards for army service by June 30, it is estimated. A large percentage of station employes—and operators— fall within the 21-35 age limit of the draft.

At one West Side station in Cleveland, the dealer and 2 of his helpers were called up last week by the draft boards. The dealer, his mother and 18-year old brother were dependent on the station for support. Draft board told the dealer he could put his young brother in the station and join the army himself. Three employes were drafted from 1 large company-operated station on the East Side.

Another West Side dealer, with a major company brand, his gallonage falling from 7000 to 5000 gals. a month, slashed his price 1c a gal. and advertised the price cut with large signs. He was surprised to find that, instead of increasing, his gallonage dropped to 3500. He asked other dealers as to why this had happened. One dealer suggested that with high wages in defense industries motorists could afford to pay for quality goods and that the cut-price sign made them suspicious of his products.

Some Leased Stations Close

From every company contacted were heard reports of dealers losing employes to defense industries. Operators of some low-income leased stations have turned back their outlets and companies have had difficulty in finding competent replacements. One oil man contacting about 400 outlets of various companies reports that 4 or 5 are closed because the supplier couldn't find a new lessee.

Situation will get worse as employment pool is drained by defense industries during next few months, according to consensus of Cleveland marketers.

Sum Up Situation

Big stations will grow bigger; smaller stations, smaller, according to opinion of most Cleveland marketers. With less competent operators at leased stations, business probably will be lost in many cases to the larger and better-managed stations. Turnover in lessees will also cut down "personal friend" type of business.

Marginal stations are faced with the dilemma of paying higher wages than they can afford in order to hold their men or else hiring less competent help with consequent reduction in quality of service, several marketers pointed out.

Meanwhile, the modern, well-equipped and well-managed station is getting an increased share of the business resulting from the defense boom and also winning customers from the "marginal" stations. This volume of business permits these good stations to pay wages that will hold their experienced help in face of tempting offers from defense industries. And competent helpers, acquainted with the customers, enable these stations to hold their old customers while gathering in new ones.

The "in-between" station must improve its appearance, equipment and merchandising or else it will fall back into the "marginal" class and eventually drop out of the picture, it was pointed out.

Several marketers said they were examining all of their outlets with a critical eye, had been doing so for some months. They are dropping marginal outlets. Leased stations on the "fringe" are being dropped or improved.

One company reduced the number of its outlets in Cleveland area by 12% last year but still had a substantial gain in gallonage. In fact, its volume per outlet was up 18% over 1939. In 1 neighborhood, an improved outlet of this company is now doing more business than 3 outlets previously did.

Nearly every company is renewing its efforts to improve merchandising at its outlets — more motor oil sales, lubrication jobs, tires, batteries and other accessories, so that these items can offset increased operating costs. One marketer in Cleveland area has incorporated a separate company to handle its accessories business; it will have its own salesmen who will have no connection with oil sales.

One company is bearing down on improving the inside of its stations — lubritoriums, displays, sales rooms, etc.—rather than building new outlets. Reason is to make it easier for the operator to sell lubrication and "plus" items and "get away from being just an outlet for gasoline".

Experience of one station was cited where new lubrication equipment, backgrounds, etc., were installed and uniforms put on operators. This station in February had a 300% increase in lube jobs and 400% increase in motor oil sales while gasoline gallonage jumped 80%.

One company told how it aimed at having its stations do enough business in "plus" items so that the gross margin for every gallon of gasoline sold would average 8c. Some stations of this company, however, average 10, 11 and even 12c per gal. on gasoline. For example, at one 5000-gal. station the operator had $250 expense yet nets $250 monthly because of his "plus" sales. Another outlet, doing 12,000 gals. of gasoline a month and with expenses of $500, grosses $900 to $1300 per month.

Servicing Wheel Bearings . . .

A Profitable Lubrication Item

MANY major oil companies and marketers in their constant and necessary search for ways and means to increase their sales have found that front wheel bearing service is a worth while item to promote.

As a whole, this necessary semi-annual lubrication service runs into many tons of grease, but the dollar "take" from this market runs into many millions a year. For an individual station merchandising the service, it means a gross income of $1 for each job done. On an average, it takes about ½ hours work and requires approximately ½ pound of grease per job. This job should be sold at least once or twice a year to every customer at every service station.

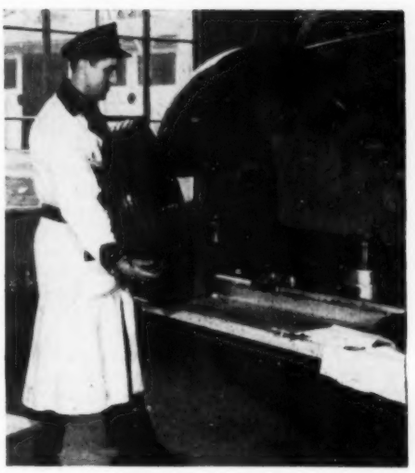
Until the last few years, wheel bearing service, in the minds of many oil men, was considered a good thing to leave alone. This was due to unfortunate experiences at stations where operators "got their foot in it" by not knowing how to do the job. Wheel bearing service then consisted of yanking the wheel, dipping the bearing in gasoline, slapping a hand full of grease—any kind of grease, "the more the merrier"—on the bearing, slapping wheel back on and calling it a job.

This of course caused trouble. The bearings were not properly replaced. This in turn caused bearing seizures, perhaps accidents. The excess lubrication of the bearings would overflow into the brake lining and destroy its friction quality. Brake trouble resolved itself into a factor that materially affected public safety.

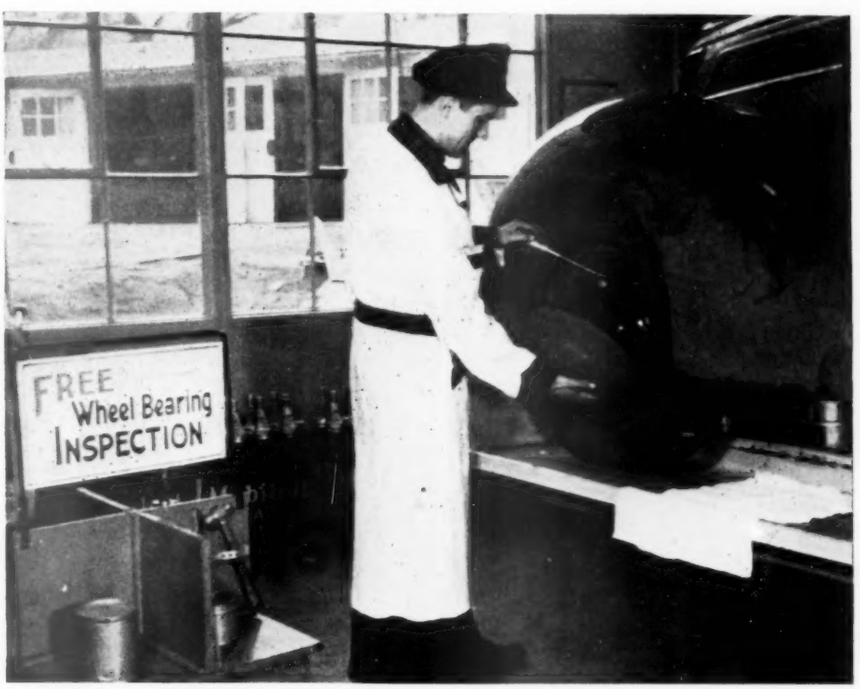
This could not be blamed entirely on operators of service stations, as in many cases it was traceable to poor design in grease trapping devices used in connection with wheel bearings. Nevertheless, marketers' stations received a black eye when something happened, and the product itself was blamed.

The result was that oil marketers didn't want their station men to touch a job with a 10 foot pole. They either let their customers get exposed to competitors, or allowed the whole business to go until the customer ran into trouble.

But as specialized lubrication developed, oil company engineers, brake and equipment manufacturers took hold of the problem with the result that today grease trapping devices are better, the removing, cleaning,

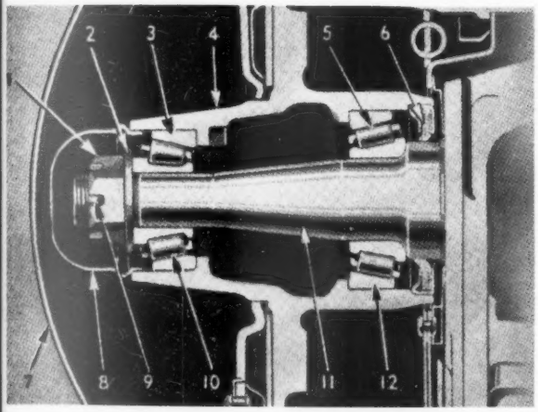


Next step was to remove cotter pin, (being sure to throw it away) nut, and washer. The wheel was pulled out slightly to loosen outer bearing and the bearing was then removed, followed by removal of the wheel, as shown. Next the inner bearing was removed care being used not to damage the bearing or the felt washer in any way. If felt washer is damaged, it must be replaced with a new one to keep lubricant from getting into brake assembly



A mobile "department" which includes sign, wheel pack device and necessary tools. Here after placing clean cloth for arranging washer and other parts in line in the order they come off to insure correct reassembly, operator has jacked up wheel and is removing hub cap. (Some cars having wire wheels require removal of entire wheel, as there is no removable hub cap.)

The next step was to wash all parts thoroughly with kerosine, wipe them dry with a clean cloth. Air is often used to dry the parts. Care must be used to protect parts from dirt and dust. Here the operator is making a careful inspection of bearings and grease retainer. If either a defective bearing or grease retainer is found, it must be replaced with a new one. Oil scoop and overflow passage must be cleaned



1—Bearing nut; 2—Bearing thrust washer; 3—Outer bearing cup; 4—Hub; 5—Inner bearing cone and rollers; 6—Hub dust seal; 7—Hub cap; 8—Grease cup; 9—Bearing nut cotter pin; 10—Outer bearing cone and rollers; 11—Steering knuckle; 12—Inner bearing cup

Front wheel bearing assembly as shown in Chrysler Corporation's Plymouth operating manual. They recommend lubrication of this roller bearing type assembly every 6000 miles with short fibre wheel bearing grease

repacking and replacing of bearings has been standardized to a point where any good lubrication man who will take the time and trouble to absorb the necessary details can handle the average job without trouble.

Today, the better trained station men are "front wheel bearing conscious". That is particularly true of those trained by most of the major companies and larger jobbers. They make it part of their program to check into wheel bearings of every car. Some stations even check on new cars to make certain the factory didn't miss.

The larger oil companies have for some time encouraged this service. Practically all of them are following a program of educating their men on the importance of front wheel bearings and the technique required to perform a satisfactory job. A check up of the leading companies, and at the stations themselves, indicates greater interest in this work now than ever before.

This might be attributed to better education on all lubricating subjects; perhaps the necessity under present conditions for greater income to "compete" with defense job salaries. Or it may be that increased interest is due to a study of the used car market. For certainly every used car sold is a prospect for this service, as a safety measure alone. States having car inspection laws are indirectly helping wheel pack jobs.

No complicated sales talks are involved in selling the service. It offers a "natural" in getting over to the car owner the fact that this is a necessary job; that it should be done on an average of every 5000 miles, or twice a year; that aside from the possibility of parts replacement, the service insures greater safety.

For advertising at the point of sale, a sign reminding the car owner of this service is always helpful. A display of a few bad and worn bearings—as a "horrible example"—placed where the car owner can see them when he comes in or leaves the station has been found to be an excellent sales help. One large oil company promotes its wheel bearing sales with mailing cards. Typical of these cards is one reading:

DANGER AHEAD

Improperly or insufficiently lubricated front wheel bearings may damage brake linings . . . bring about bearing failure . . . even cause serious accidents. Don't take chances . . . let us repack your front wheel bearings with ..... You will get the right amount of lubricant in exactly the right place.

DON'TS

Never allow hydraulic brakes to be touched while wheel is off.
Never use an old cotter pin.
Never put lubricant in hub cap.
Never fail to dry all parts thoroughly before lubrication.

A continuous "ask 'em to buy" program, plus a display and a sign is about all there is to the selling.

No expensive equipment is required, nor is a large stock of material necessary. Some dealers use mechanical packing devices, or wheel packs. There are several of these on the market. Oil marketers, if they wish, can stock these for supplying their stations and dealers without having a large amount tied up in inventory.

Most car manufacturers recommend that grease seals be renewed when wheels are removed, or bearings disassembled. A stock of these and some new cotter pins, plus the tools found in an average station, is all that is required in the way of equipment.

Those marketers not yet "pushing" this business, will find it well worth the effort.

Supplies needed for wheel bearing job

Clean cloth or canvas one yard square (For laying out equipment) Jack . . . Kerosine . . .Wheel bearing lubricant . . . Hand oil can . . . Clean cloths . . . Small paint brush . . . Wire brush . . . Hammer . . . Wood or steel punch . . . Pliers . . . Adjusting wrench . . . Hub cap wrench . . . Vacuum gear flusher or utility suction gun . . . Compressed air . . . New cotter pins . . . Grease retainer . . . Wheel packing device (optional) . . . Bearing puller.

Here the operator is using a mechanical device for packing the bearing. Where mechanical devices are not used the grease is worked in retainer around the bearings by hand. Care must be used not to overstuff bearing with lubricant. Excess lubricant on the outside of the bearing will cause excessive temperatures, and possibly break the grease retainer and allow the lubricant to get into the brake drum. While the wheels are removed, the brake shoe linkage and connections should be lubricated sparingly with motor oil. Excess oil should be wiped off, so that none is deposited on brake drum or lining. Job is completed by . . . (a) replacing inner bearing on spindle; (b) replacing wheel and jog into place to seat inner bearing; (c) replacing outer bearing and key washer; (d) replacing nut and turning until wheel binds; then loosening gradually until the wheel revolves freely (usually 1/8 to 1/4 turn). The nut should be set as tight as it can be made **without binding the wheel;** (e) install a **new** cotter pin and replace hub cap

HOLD THAT PEN!

Before you sign your 1941 contract, look over your Cities Service salesman's attractive proposition

"Haste makes waste" in opportunities as well as in actions. So why not give yourself a break and listen to *all* the 1941 stories before you commit yourself for the year? Your Cities Service representative, for example, has a story worth hearing—a sales plan from which many another clear-headed, far-sighted station operator has profited richly.

Keep in mind that with Cities Service you have under your banner such nationally advertised products as Koolmotor Gasolene, Koolmotor and Cities Service Motor Oils, Trojan Lubricants, and Acme Tires and Batteries.

And there's plenty of profit for you in such specialty items as Cisco Solvent and Cisco Pep and in such exclusive service features as the Power Prover and Ride Improver—all business builders and real money makers.

For your own interest, as well as ours, we'd like an opportunity to tell that story to you. So wait; don't sign on that dotted line until you've listened to your Cities Service salesman.

"It pays to sell Cities Service Products because Cities Service helps you do the selling"
HELP GIVE YOUR CAR
AN EXTRA
YEAR OF YOUTH

All this support is yours when you sign with Cities Service

Exclusive Properties—Don't forget, in addition to our line of regular petroleum products, no other company can offer such new, profitable service features and specialties as the Ride Improver, Power Prover, Cisco Solvent and Cisco Pep.

Radio—The Cities Service Concert, radio's oldest program, entertains millions of listeners every Friday night. Lucille Manners, Frank Black, Ross Graham and Ford Bond help you sell Cities Service products.

Magazines — Cities Service's 1941 theme "an extra year of youth for your car" reaches key executives in pages of weeklies and monthlies.

Outdoors — They read while they ride—and Cities Service billboards and posters attract customers at the ideal time—right when they're on the highway.

Cash in — Think what this complete selling program can mean to your business. Why not get all the details on this money-making merchandising? A Cities Service representative will be glad to discuss it with you.

CITIES SERVICE OIL COMPANIES

CITIES SERVICE OIL COMPANY—Chicago, New York, Cedar Rapids, Boston, St. Paul, Grand Forks, Syracuse, Kansas City, Ft. Worth, Oklahoma City, Milwaukee, Cleveland, Detroit.
CITIES SERVICE OIL COMPANY, LTD.—Toronto, Canada.
ARKANSAS FUEL OIL COMPANY—Shreveport, Little Rock, Jackson, Birmingham, Atlanta, Charlotte, Nashville, Richmond, Miami.

MERCHANDISING

Significant developments in merchandising of Petroleum accessories and Allied Lines, will be discussed on this page. Merchandising facts, figures, problems and trends will be presented here for all interested in oil marketing. This is a readers' forum. Comments and suggestions are invited. Address: Merchandising editor, NATIONAL PETROLEUM NEWS, Cleveland, O.

THE purpose of this department is to give all in oil marketing new developments in petroleum and accessory merchandising. It will report and discuss ways and means used by marketing men individually and collectively in promoting sales or getting started with new lines, and successful plans being used in merchandising old lines.

To be of greatest value to all, the co-operation of every reader is needed. So every reader is invited to contribute to this department from his own experiences; or he may ask questions.

An independent oil marketer particularly needs the experience of other marketers. Often a proposition that would be profitable for a major company operating in many states, just wouldn't work for the average marketer doing business in a few counties or perhaps a couple of states.

Tires and Batteries

On page 30 of this week's NPN is an article about the tire and battery market insofar as independent oil marketers are concerned. In order to secure the material for this, some 1600 oil marketers in 29 states were sent questionnaires. None of these marketers sell less than 100,000 gallons of gasoline a year. In addition to the questionnaire, a personal survey of representative oil marketers in 5 states in which more than 1/5 of the nations cars and trucks are registered was made by NPN representative.

Independent Marketers Agree

The result of this survey was just about a 100% unanimous vote by independent oil marketers in favor of selling tires and batteries. Many interesting letters were written the editor on the subject. Most of them were along the line of one written by T. Wilbur Thornhill, President of Charleston Oil Company of Charleston, S. C. who says:

"There is no future for the Independent Oil Marketer unless he sells additional merchandise. The price at which he buys is pegged and the price at which he sells is arranged. He must get into the open territory if he expects to kill any real game (money)."

Future Bright for Independents

By far the majority of Independent Oil Marketers who wrote to NPN, or those contacted through its field survey are taking an optimistic view of the future. Even those marketers confronted with bad local conditions, such as crop failures, competition, cut rates and "gipping", very seldom get on the pessimistic side of the subject.

True 38% of the independent oil marketers are not yet in the business of selling such accessories. But subtract from that the 11% who definitely are going into that business, and it would seem that independent oil marketers are really in the tire and battery business.

War Conditions Open New Markets

Looking ahead in the tire and battery field, war conditions are creating a "natural" so far as the replacement market is concerned. With the probable curtailment of car production for the purpose of National defense, many of the annual new car buyers must make the old bus do another season or so. This means that the replacement business will get better every day.

War time workers make good money. Millions of the 11,000,000 idle since 1929 have already returned to work—perhaps the first steady work in the lives of many.

Oil Marketers Not Tire Chiselers

One point definitely brought out in the survey is that oil marketers do not use tires and batteries as "loss leaders." On the contrary, they make a legitimate profit from accessories. At the same time accessories help their dealers to keep their heads above water during price wars. This is indicated in a letter from W. H. Craig, President of the Tri-Point Oil Co. of Pueblo, Co., who says:

"During hectic price wars, we have been materially assisted in keeping our chin above water by the sale of tires and batteries AT A PROFIT. We do not use tires and batteries as 'loss leaders'; on the contrary, we make a legitimate profit off of each of them. We have found by experience that in helping our dealers to make a profit through allied lines of merchandise that we handle, they are tied closer to us in many ways, and usually are much harder to change from the gasoline dealerships due to this one fact."

Training Essential

G. M. PRATT, Manager of the oil division of Buhl Sons Company of Detroit, believes that the tire selling cocktail consists of enthusiasm, with a dash of showmanship. Also an oil marketer should show his dealers how it can be done on his own drive. To quote from a letter Mr. Pratt wrote NPN:

"Education and voluntary training can make a merchandiser out of any intelligent gas station operator and attendant. It is the Salvation Army enthusiasm that has to be used to develop sales of tires and batteries these days in competition with the 'gips'. It does not have to be price cutting, because when you analyze the competition of the 'gips' you usually find, especially where budget enters into it, that the 'victim' may go in expecting to buy a tire at $6.66, but usually comes out with one that has cost him $8.95 to $11.50 or better".

And S. R. MCMASTER, who runs the Winnsboro Petroleum Co. in Winnsboro, S. C. writes us his idea as he thinks it applies to small town marketers:

"I feel that if the independent oil marketer is to stay in business, it is increasingly more important that he sell accessories in general. This applies particularly to small town marketers. I don't know about the big city set-ups."

Farms and Small Towns Offer Big Market

According to "Automobile Facts and Figures", 1940 edition, 41% of all motor vehicles are registered on farms and in towns under 2500 population, and only 13% in cities over 500,000. Collectively the smaller centers have a greater potential. How a marketer looks on the tire and accessory business who operates in a small town is illustrated in a letter we received from A. F. Geyer, a veteran of 20 years oil marketing experience, who operates in Waterville, Kans. Mr. Geyer writes:

"In the average small town, where you know everybody and they all know you, your brother business man's rights must be respected to

NO EVAPORATION LOSS

with this Expansion Roof

It pays for itself while it works for you

LOSS of gasoline by evaporation from storage or working tanks today is more costly to the refiner than ever before because it is a 4-fold loss. Every gallon that vanishes through your tank roofs carries with it, besides the gasoline itself:

The cost of producing the gasoline.

The easy starting qualities—because it's the light ends that go first.

Part of the octane value—because the light ends carry most of the anti-knock properties.

You don't need to suffer such losses any more—the remedy is simple, effective and available.

It is the Graver Expansion Roof.

Install it on a gasoline tank and you end the 4-fold loss of gasoline value at once—because no evaporation takes place. The Graver Expansion Roof is designed on a simple, common-sense principle—to expand the space as needed, holding the gasoline vapors instead of expelling them. Liquid sealed all around, it rises and falls as the vapors in the tank expand and contract.

The Graver Expansion Roof saves enough to pay for itself in a couple of seasons (or less) and goes on saving for you. The sooner you find out what it will do for you, the sooner you'll make it standard equipment on your gasoline tanks. Then your evaporation troubles will be over.

Send for Conservation Bulletin—It's free.

Some Advantages of the Graver Expansion Roof

All equalizing equipment inside, protected from weather.

Viscosity of oil in liquid seal is constant, unaffected by temperature changes.

Maintains conical shape, making it self-draining.

Requires no more maintenance than ordinary cone-roofed tank.

Is fool-proof.

Other Features

Suitable for tanks of any capacity.

No shovelling of snow or ice from roof.

Equalizing mechanism can be adjusted if necessary from outside without taking roof out of service.

Will last as long as ordinary cone-roofed tank.

GRAVER TANK & MFG. CO., INC.

NEW YORK
CATASAUQUA, PA.

4001 Tod Avenue,
EAST CHICAGO, IND.
CABLE ADDRESS—GRATANK

CHICAGO
TULSA

some degree if you are to expect his support and good will. I have known some service station operators to try to sell everything from husking pins to refrigerators, which, in turn has a very definite and unfavorable reaction.

"Perhaps in a city this would not mean much, as conditions differ. But I have come to the conclusion that we must live and let live and profit by it. For instance, I have, in one town where I operate, two good garage accounts and I refrain from selling them tires and accessories, not by any mutual agreement, but simply by applying the Golden Rule and believe these accounts are more valuable than profits which could be obtained by adding an additional line of accessories and with much less labor. I believe, however, under different circumstances where the above factors are not involved, tires, batteries services and a limited amount of accessories should be made available to the automobile customer . . .

"This is merely my personal view from a rural or small town experience and trust this will serve to give you my opinion of the situation".

* * *

Write Us A Letter

Letters quoted on this page are only a few that come in the editor's mailbag. More on subjects of general interest will be published from time to time. We hope these will lead more of our readers to write us on any subject in which they are interested. Perhaps letters from other marketers may give the answer to problems that you are facing.

* * *

Marketers in 29 States Contacted For Trend in Tire, Battery Sales

By means of a questionnaire, NPN recently contacted over 1600 independent oil companies in 29 states to find the trend of the tire and battery business so far as it pertained to independent oil marketers. No particular method was used in selecting the names except so far as possible a good cross section of all types of marketers were selected. It included the big city marketer, the medium and small town distributor and those doing business exclusively in rural sections.

An NPN representative also made a personal survey of leading independent oil marketers in five states in which more than 1/5 of the nation's cars and trucks are registered.

Many of the questionnaires were elaborated upon by personal letters to the Editor. There were enough of these letters so that in addition to cold statistics, NPN has been able to analyze the information received from the "sit-down-and-talk-it-over-angle." A lot of facts, not included in the questionnaire, came to light.

For instance, in spite of price cutting, special sales, company operated stores, mail order competition, "bankrupt sales artists," retreaders and second hand tire dealers, oil marketers who like to fight are increasing their tire and battery business.

Here and there we found a marketer who was concerned about company store operations, competitors using tires as "loss leaders." Even the old standing joke of the necessity of having to employ a certified accountant to figure out the discounts bobbed up.

A few marketers admitted that competition, narrowing margins, and such factors forced them in the business when they didn't want to get in in the first place. But being honest, they also admitted that they were glad they did get in the business.

A composite picture of a rather large stack of letters on the subject would easily read as follows:

"There is no future for the independent oil marketer unless he sells additional merchandise. I feel that if the independent oil marketer is to stay in business it is increasingly more important that he sell accessories in general. This applies particularly to small town or big city marketers. The one-stop service station and the super market are products of the present age. It is the station of the future and the gasoline marketer must pattern his chain accordingly, and when his chain of stations are so patterned, they become factors in his particular territory. As this is repeated hundreds of times throughout the land, these outlets are being recognized by tire and battery manufacturers as a potent factor in the distribution of their goods.

"The gasoline marketer, by handling tires, batteries and accessories, is in a position to do a better job of teaching a good dealer to be a successful merchant. This adds up that a distributor of tires, batteries and accessories, will have a fertile and profitable field in the years to come."

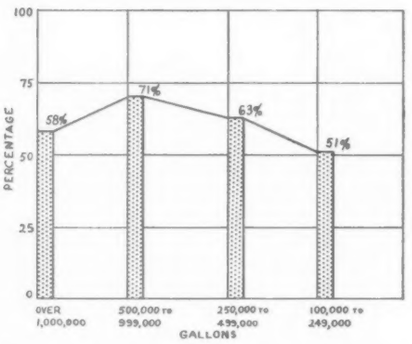
Now for some facts on the survey: In 4 gallonage groups, we have the following picture for 1939:

Annual Gallonage	Average Tire Volume Per Oil Marketer	Average Battery Volume Per Oil Marketer
1,000,000 and over	$30,777	$5,205
500,000 to 999,000	16,653	1,722
250,000 to 499,999	5,166	833
100,000 to 249,999	3,021	704

This indicates that independent oil marketers are doing a good job of selling both tires and batteries. They are doing a better job in many cases than some major oil companies do with their own brands of tires in some of their controlled stations. In all the gallonage groups, independent marketers exceed or compare favorably with the job being done by the major companies who do outstanding selling jobs. For instance, in the sale of batteries, marketers in the 100,000 to 500,000 gal. class, and in the 500,000 to 1,000,000 gal. class, exceed some major oil company sales.

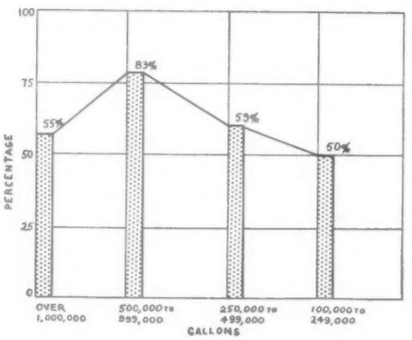
In 1939 independent oil marketers increased their tire sales to an average

Independent Marketers Selling Tires



Results of NPN's study of tire sales by independent oil marketers is analyzed in 4 separate gasoline gallonage charts. Marketers selling less than 100,000 gals. yearly were not considered. Percentages of marketers in each group which are selling tires, are shown in above chart. For instance, 51% of oil marketers handling from 100,000 gals. to 249,000 gals. yearly, sell tires

Independent Marketers Selling Batteries



Results of NPN's study of battery sales by independent oil marketers is analyzed in 4 separate gasoline gallonage charts. Marketers selling less than 100,000 gals. yearly were not considered. Percentages of marketers in each group which are selling batteries, are shown in above chart. For instance, 50% of oil marketers handling from 100,000 gals. to 249,000 gals. yearly, sell batteries

of $17,557, from an average of $15,740 in 1938. The first half of 1940 over the same period of the previous year indicates a 29% gain by 45% of the marketers reporting. Comparison of the same period indicates that at the time of reporting, 15% of the marketers were running just about the same, while 40% were showing losses on an average of 19.8%.

Of the 51% of the independent marketers in the battery business, total increases in 1939 over 1938 while smaller, nevertheless were gains on a whole. In 1938 the average volume was $3,053, while in 1939 it was $3,151. In 1940 on a 6 month basis, 66% of those reporting averaged a 22.2% gain; 15% held their own, while 19% showed a loss.

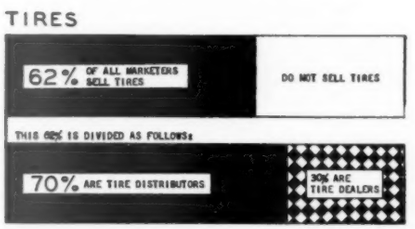
This amounts to a substantial business compared with exclusive tire and battery distributors and dealers.

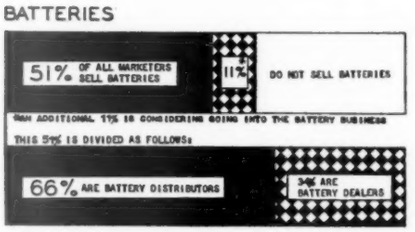
Letters from and contracts with independent marketers would indicate that generally where there are losses in dollar volume, there is no loss in profits. In other words, the average marketer is not a price cutter. He is not interested in volume without profit.

The survey indicates that the average marketer is in the tire and battery business primarily to make extra profits for himself. By developing sales, marketers lighten the burden of their own operating expense on oil and gasoline distribution. By working with their dealers, these outlets are able to make more money, which in turn means a better financial set up, larger dumps and decreased delivery costs.

Of the independent oil marketers reporting, 62% now sell tires; 51% of them sell batteries. On an average they have been selling them for 5.7 years. Some have been in business as long as 25 years. Not a single marketer indicated that he was going out of the tire and battery business. In fact the ma-

Number of Oil Marketers Selling Tires, Batteries


TIRES
62% OF ALL MARKETERS SELL TIRES
DO NOT SELL TIRES
THIS 62% IS DIVIDED AS FOLLOWS:
70% ARE TIRE DISTRIBUTORS
30% ARE TIRE DEALERS


BATTERIES
51% OF ALL MARKETERS SELL BATTERIES
11%
DO NOT SELL BATTERIES
AN ADDITIONAL 11% IS CONSIDERING GOING INTO THE BATTERY BUSINESS
THIS 51% IS DIVIDED AS FOLLOWS:
66% ARE BATTERY DISTRIBUTORS
34% ARE BATTERY DEALERS

GOODHOPE is good news for oil men !

Goodhope Terminal at New Orleans saves countless dollars and untold headaches for bulk liquid shippers. This huge plant—the world's most complete public terminal—handles any commodity that will flow through a pipe line, with the *speed* and *safety* for which General American Terminals are famous. You get 7 exclusive benefits at our strategically located terminals. Get the facts!

ONLY GENERAL AMERICAN GIVES ALL THESE ADVANTAGES:

1. NO CONTAMINATION. Separate pumps, lines, storage zones for dissimilar commodities.
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6. SPEED WITH SAFETY. Day and night crews, complete facilities, eliminate all shipping delays.
7. WORLD'S LARGEST TANK CAR FLEET. One car or hundreds, wherever and whenever needed.

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GENERAL AMERICAN TANK STORAGE TERMINALS

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Corpus Christi, Texas
Carteret, N. J. (Port of New York) Galena Park, Texas (Port of Houston)

A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

jority indicated that in 1941 they planned to put forth greater effort to get every penny of the motorist's dollar that is spent on his car.

The largest group of independent oil marketers not in the tire and battery business, according to this investigation, was the smaller marketer. This would not necessarily indicate that the marketer is small because he is not yet in the tire and battery business. Rather, it would indicate that the addition of these lines come with the natural growth of the company.

Companies not actually in the tire and battery business for some reason or other, however, encourage their dealers to sell them. Many marketers are sold on certain brands of tires, batteries and accessories from having used them, or being influenced by advertising or for other reasons. A check on the dealers of these marketers will usually show the dealer handling the brand favored by the marketer.

The importance of oil companies as tire merchants is indicated by the testimony of a major oil company executive before the Temporary National Economic (Monopoly) Committee. This executive stated that 10 years ago only 2 tires out of 100 were sold at oil company service stations; that today, major oil companies *alone* account for nearly 16% of all replacement sales.

At least 1 major oil company started its 1941 program with renewed energy. That company dropped its intensive merchandising program about 4 years ago. But evidently facts developed in the past few months caused a change in its policy of leaving tire and battery promotion to the rubber company with which they did business.

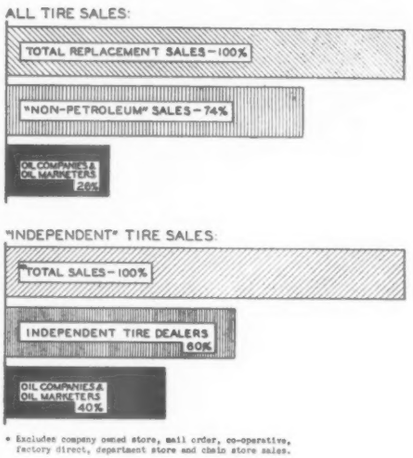
NPN's survey indicated that of those replying to the questionnaire, or by personal contact, 51% of the oil marketers sell batteries. An additional 11% are considering going into the battery business. 66% of these marketers in the battery business act as battery distributors. They serve an average of 25 dealers each. Of these 25 outlets, 3.8% do not sell the oil marketers' brand of gasoline.

This indicates that perhaps some oil marketers distributing batteries are using the line as a wedge in developing their gasoline and oil distribution. These marketers know the advantage of having business dealings with their dealer prospects over more contacts by themselves or their salesmen.

Of the oil marketers average of $4,130.05 battery sales in 1939, 67% was sold through the marketers own stations. Forty-four different brands are sold.

That, Mr. Marketer, is a picture of the tire and battery business as found by NPN this last fall. Indications are that a picture of the same business in the fall of 1941 will be much better. Second hand cars are rarely sold with new tires, batteries or accessories. As soon as the thousands of defense industries workmen who bought used cars for their work recover from the down payment, they are going to start fixing the bus up. And they will do it right. No "cheap stuff" for these well paid workers. And those buyers will want the latest thing in tires, batteries, accessories and "gadgets."

Analysis of Tire Sales



* Excludes company owned store, mail order, co-operative, factory direct, department store and chain store sales.

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THE NEXT TIME WE NEED A ROTARY PUMP FOR BULK STATION, BLENDING PLANT, TANK TRUCK OR REFINERY SERVICE, FIRST CHECK WITH VIKING. THEY HANDLE THE MOST COMPLETE LINE OF STOCK ROTARY PUMPS IN THE WORLD, PLUS, THE WIDEST SELECTION OF MOUNTINGS, DRIVE ARRANGEMENTS, CAPACITIES AND METALS. THEIR FAMOUS PRINCIPLE OF ONLY 2 MOVING PARTS WILL GIVE US THE PUMP ECONOMY WE'VE BEEN LOOKING FOR—LESS WEAR, FEWER REPAIRS AND REPLACEMENTS, DECREASED POWER REQUIREMENTS. VIKING'S BULLETIN 405-39 GIVES ALL THE DETAILS—GET A COPY TODAY.

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VIKING PUMP COMPANY
CEDAR FALLS, IOWA

Opportunity for Better Merchandising Shown by Motor Vehicle Inspection Law

PENNSYLVANIA'S motor vehicle inspection law throws the spotlight on hundreds of thousands of sales opportunities that are slipping through the fingers of oil marketers and their station operators.

Official state reports show, for example, that during 1940 there were 270,748 smooth tires found on Pennsylvania cars and trucks. Similarly, these inspections disclosed tens of thousands of cars needing wiper blades, light bulbs or some other adjustment, service or item to put them in condition to meet state inspection.

And the service stations at which these cars stopped, prior to the inspection, had a chance to sell them the needed tires, wiper blades, light bulbs, etc.

Less than 3 out of 4 Pennsylvania cars inspected had GOOD tires, according to the report based on the first of two regular annual examinations under the state's compulsory motor vehicle inspection law.

Like most of the 16 states and the District of Columbia with inspection laws (See NPN, Feb. 5, 1941, Page 30), Pennsylvania requires all vehicles to be inspected twice a year.

The 270,748 POOR tires found on Pennsylvania cars and trucks constituted 3.3% of the total of 8,204,484 tires inspected on 2,051,121. Total registrations totaled 2,097,261 at the time.

There were 1,747,555 FAIR tires on vehicles in operation in Pennsylvania, as reported by the Bureau of Highway Safety. This was 21.3% of the total number of tires inspected. The number of GOOD tires reported was 6,186,181 or 75.4% of the number inspected on all vehicles.

The percentage of passenger cars found to be in a satisfactory condition as regards tires, that is, with GOOD tires, was 72.4% of all passenger cars inspected, the safety bureau reported. The proportion of commercial vehicles with GOOD tires was a little larger.

Tires are reported poor, the bureau states, "when absolutely smooth". They are defined as fair, "when the tread is approaching smoothness." They are good when "at least 50% or more of the original tread design is visible."

Owners of vehicles with one or more POOR tires do not, in all cases have their cars rejected, at the state inspections, until smooth tires are replaced with safe tires. However, if their tires, in the 6 months following the inspection, wear to the point where fabric shows, or there are other visible signs of weakness, owners are likely to be stopped on the highway at any time, and required to replace those tires at once. Pennsylvania motor police, who supervise the inspections, are emphatic on this point, that unsafe tires will not be permitted in use at any time, even though passed at the last previous inspection. Regrooved and re-treaded tires are permitted.

Requirements as to condition of tires allowed in use on the highways are carefully defined in the Motor Vehicle Code of Pennsylvania. Its check-up on tires is more severe than in many of the 16 states with compulsory inspection laws. Sect. 829 of its code reads:

"(a) It shall be unlawful for any person to operate any vehicle, or combination of vehicles, upon the highways of this Commonwealth with tires showing breaker strip, cushion gum, or fabric.

"(b) The owner or operator of any vehicle who is notified by a peace officer that his tires, or tire, do not conform with the requirements of this act, or are unsafe or unfit, or in need of correction adjustments or repairs, shall be allowed 48 hours within which to adjust, repair or replace such tires to conform with the requirements of this act."

(Then follows the section defining when tires are to be marked poor, fair and good.)

"A sticker (showing it has passed inspection) is not to be affixed to any vehicle when any one or more of the tires are worn through to the fabric or cord.

"Visible signs of weakness, such as deep-cuts, bruises, or ruptures, are considered unsafe, and a sticker is to be withheld until proper repairs or replacements are made."

Report of the 1940 tire inspection was the most complete made by Pennsylvania authorities. Heads of oil marketing companies in this state, and supervisors of service station operations, say it is proof of the extent to which oil company service stations are missing opportunities to sell tires. Said one executive:

"Since only 72.4% of the passenger cars operated in 1940 were reported in good condition as to tires, it means that about 515,000 of the total number of 1,866,000 passenger cars registered, are prospects for tire sales. A great proportion of these are family cars and their owners should be on service station prospect lists."

"Of the 270,748 poor tires reported by the inspection authorities for 1940, a far larger proportion are known to be on family cars, for commercial cars in most cases would not be operated with tires in this condition. Most of the owners of these tires will have to replace them before the next inspection period; for only moderate wear will cause the fabric to show, or bring to light other defects, that will cause them to be rejected. The owners of

A few service stations in Pennsylvania are licensed to inspect motor vehicles under the state law calling for compulsory check-up twice a year, but most of the inspection stations are garages. This dealer station of Republic Oil Co. of Pittsburgh, at the suburb of Perrysville, holds a license and has built up its lubrication sales, by pointing out the need, when cars are in for inspection. One of the proprietors is an experienced auto mechanic

Summary of Motor Vehicle Inspections in Pennsylvania

Number of vehicles with defects found in the first inspection period in 1940, as compared with the same period in 1939. Reports on tire defects were reported separately.

From the report of the Director of the Bureau of Highway Safety.

		Adjusted	Repaired or Replaced	No. Vehicles O.K.
Horn	1939	21,383 or 1.1%	15,552 or .8%	1,907,018 or 98.1%
	1940	16,409 or .8%	18,460 or .9%	2,016,252 or 98.3%
Wiper	1939	25,271 or 1.3%	68,039 or 3.5%	1,850,643 or 95.2%
	1940	16,409 or .8%	53,329 or 2.6%	1,981,383 or 96.6%
Brakes	1939	396,566 or 20.4%	192,451 or 9.9%	1,354,936 or 69.7%
	1940	420,480 or 20.5%	188,703 or 9.2%	1,441,938 or 70.3%
Steering	1939	48,599 or 2.5%	42,767 or 2.2%	1,852,587 or 95.3%
	1940	116,914 or 5.7%	73,840 or 3.6%	1,860,367 or 90.7%
Headlight	1939	85,534 or 4.4%	141,909 or 7.3%	1,716,510 or 88.3%
Reflector	1940	96,403 or 4.7%	162,038 or 7.9%	1,792,680 or 87.4%
	1939	21,384 or 1.1%	33,047 or 1.7%	1,889,522 or 97.2%
Front End	1940	28,716 or 1.4%	67,687 or 3.3%	1,954,718 or 95.3%
	1939	23,327 or 1.2%	13,608 or .7%	1,907,018 or 98.1%
Mirror	1940	8,204 or .4%	14,358 or .7%	2,028,559 or 98.9%
	1939	19,440 or 1.0%	25,271 or 1.3%	1,899,242 or 97.7%
Exhaust	1940	6,153 or .3%	65,585 or 3.1%	1,981,383 or 96.6%
	1939	1,043,903 or 53.7%	260,490 or 13.4%	639,560 or 32.9%
Lights	1940	1,094,299 or 53.4%	248,186 or 12.1%	707,637 or 34.5%

these tires should be on the stations' immediate prospect lists."

Tires have been inspected in Pennsylvania, starting in 1939, under an amendment of the Motor Vehicle code, which was passed in 1929. Tire distributing agencies say inspections have definitely increased sales of both new and retread tires, and that increases in sales are noticeable during the last 3 weeks of the inspection periods, through purchases by car owners who realize they will have to replace a tire or so, to pass the inspection.

Some of the sales then are of the so-called "dog" sizes, 20 and 21-inch tires, for 1928 and '29 model cars. Oil companies supplying dealer outlets report they are benefiting from this increased business. They say, however, they cannot trace many sales of tires at their stations to this source.

BUT tires are not the only cause of rejections, at the Pennsylvania compulsory examinations, which demonstrate that oil companies are losing station sales opportunities.

Defective lights had to be repaired, or replaced, on 248,186 motor vehicles in this state to enable them to pass the first inspection in 1940. This was 12.1% of the total vehicles inspected. Lights had to be adjusted on 1,094,299 cars, 53.4% of the total inspected. Lights were reported "satisfactory" on 33.1% of the passenger cars inspected, and on 34.5% of the commercial vehicles.

"Motorists must become more conscious of the fact that, with the wear and tear on automobiles today, adjustments or replacements must be made periodically," states Director T. E. Transeau, of the Bureau of Highway Safety. "The proper adjustments of brakes and headlights are 2 examples of this fact."

Latest instructions of the bureau to the official inspection stations, for testing lights and lighting equipment are:

"Remove the doors, or lenses, and examine the reflectors, bulbs and lenses.

"Reflectors must be polished, replated, or replaced if dark spots show through plated surface, or if pin holes or tiny spots are bunched, or if reflectors are rusty and dented.

"Bulbs must be checked for allowable candle power (32 CP maximum) discoloration, or sagged filaments.

"In checking 1940 headlamps, known as the 'Sealed Beam Headlamps', the only test necessary will be the aiming. It will not be necessary to check for sagging filaments, discoloration, etc.

"By laying bulbs on the white enamel tray (procurable at any photographic supply house) bulb discoloration and sagging filaments are very apparent, and in cases of either or both, the bulb must be replaced. Broken or deteriorated gaskets must be replaced.

"Lenses must be clean, not cracked; of the same make; and of a type approved for use in the Commonwealth.

"After the above conditions are satisfactory, properly focus the bulb and aim the headlamps to meet the requirements of the law, taking into consideration the prescribed loading allowance of the vehicle." Instructions are included for testing headlights for adjustment, with an approved type screen, with an approved output meter; also with an approved headlight tester.

As well as headlights, the examinations include fog lamps, rear license plate and stop lamps. Equipment must be of an approved type. Instruction books carry lists of equipment approved by Bureau of Highway Safety.

Commenting on condition of lights in the 1940 campaign, the bureau said: "Lights were found to be in less need of adjustments, repairs or replacements than for the previous year."

The steering had to be adjusted on 116,914 cars in the first inspection in 1940, or 5.7% of the total inspected, and repairs or replacements made on 73,840 cars, 3.6% of number inspected. Steering was found to be less satisfactory than in 1939, bureau reported, because a greater number of adjustments or repairs or replacements had to be made. The same was true of the front end.

Instructions for inspecting steering mechanism call for examining the amount of movement, measured in inches at the outside circumference of the steering wheel. "The department considers UNSAFE any movement in excess of 2¼ inches," the instructions read. The steering column is examined for up and down play, also the cross shaft; the upper steering housing column bushing for wear; pitman arm and steering arm for tight fit. Adjustment of cross tie-rod to steering arm is examined. The front end is jacked up and examined for wear and play in wheel bearings, spindles, pins and bushings. All steering ball joint connections are examined for proper adjustment and lubrication.

All Pennsylvania inspection stations are required to handle ordinary steering adjustments and repairs. Work found necessary on wheel alignment, complete steering overhaul and independent front wheel suspensions may be done elsewhere, provided those cars are returned to the original station for re-inspection.

BRAKES had to be adjusted on 420,480 cars in Pennsylvania in 1940, and repaired or replaced on 188,703 cars, the cars rejected for this cause being very nearly 30% of all motor vehicles inspected. This was slightly higher than the number rejected for defective brakes in the corresponding 1939 campaign.

Instructions give details on methods of testing brakes. One of the wheels must be removed, to inspect brake linings and drums of mechanical service brakes. "Inspect for lining, thickness of grease saturations, and problematical life of linings," they read. "On all vehicles the following should be checked: Springs, worn clevis and cotter pins, missing spring clips, wheel-bearing adjustments and grease retainers."

On hydraulic brakes the instructions are to inspect external condition of hose and tubings for evidence of leakage of brake fluid. Test for leakage is also made by holding the pedal depressed for at least 1 minute. If the pedal does not hold its position, it is regarded as an indication of leakage in the system, and the position of the leak is to be checked. Such defects require the car owner to fix the leak and replenish the fluid.

Regulations provide that all motor vehicles operated in Pennsylvania must have windshield wipers. Wipers were found defective on 69,738 cars, in the 1940 inspection, 3.4% of the total number of vehicles inspected. This was a little smaller number of defects than found in 1939. Wiper arms or blades had to be repaired or replaced on 53,329 cars. Windshield wipers "were found to be in better condition than in the previous campaign," the Highway Safety Bureau reported. Instructions to inspectors concerning this equipment read:

"All motor vehicles must be equipped with windshield wipers in good work-

ing order. Manual types are permitted. Air or electric types may not be operated by hand. When equipped with 2 blades, both must operate.

"Wiper blades must clean an arc of at least 7 inches and be free of deterioration."

Vehicles not equipped with windshield wipers are ordered to be rejected. Those with faulty wipers are rejected until repairs are made and the equipment is in good working order.

Over 1% of cars tested in Pennsylvania are rejected for defective rear-view mirrors. Where normal rear vision is obstructed, special mirrors must be mounted to give the driver a clear view for at least 200 ft. to the rear.

When the authorities in Pennsylvania, a few years ago, began to insist on a more thorough inspection of motor vehicles under the Motor Vehicle Code, which had been passed in 1929, oil marketing companies studied the possibilities in applying for licenses for some of their stations to make the inspections. The law calls for licensing garages or service stations to do this work. At present, there are about 9000 licensed inspection stations over the state.

THE oil companies decided against doing the work in their own stations, even though they lost some sales of accessories and services. A few of their leased stations are inspection stations, also some independently-owned and operated stations. The number of service stations making the examinations has been further reduced, after the supervision of inspections was taken over in the fall of 1939 by the state motor police. Formerly, state inspection was under a politically-appointed board. The police found the service stations in most cases lacked the floor space and proper facilities to make the inspections as now required. Reasons why oil companies decided against doing this work at their stations is summarized as follows:

1—They would have to be strict and follow the letter of the law in making the semi-annual check-ups. They felt there was a good chance of their offending some regular customers by insisting on replacing a questionable tire, lamp bulb, or rear view mirror, when the car owner would insist the car would run just as well and as safely, without the replacement.

2—Additional floor space, and equipment would be needed, also the services of at least one experienced mechanic. The revenue from making inspections is $1 and the time taken is about the same as for a chassis lubrication. While extra sales result through defects found during the inspections, the oil companies questioned if the revenue would be profitable, considering the extra expense.

3—Stations would have to send out some of the repair work and adjustments found necessary, unless they operated as complete repair garages, and there was the chance their gasoline and

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Shorter **stops,** ***more*** **stops,** ***longer profits!*** **Briefly, that's the story producers, distributors and truckers are telling about GOODALL'S "Newtype Cord" TANK TRUCK HOSE. Every feature built into this hose, after years of field research and experiment, is designed to insure faster deliveries, more stops per truck per day, and a better profit on every vehicle equipped with it. Non-kinking, full-flow, strong and durable. No amount of twisting or bending will break it down. Light in weight—easy to handle.**

STYLE R-10: Red gasoline resisting tube, grey cover. For All Open Nozzle (Dry) Service.

STYLE R-23: Black "Synplastic" tube, brown cover. The "Synplastic" (no rubber) tube will carry oil or gasoline in Wet Service without swelling or reducing hose capacity. Made in sizes 1½" to 4" inclusive; maximum lengths of 50 feet.

NOTE: If you prefer a soft type hose, ask about GOODALL Brown Cover ("Synplastic" tube) or GOODALL Grey Cover (Red Tube) SOFT TYPE TRUCK HOSE.

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Branches and Distributors from Coast to Coast.

oil customers might feel this work was not properly done, or that they were overcharged.

4—While the law provides for two 3-months inspection periods a year, 6 months apart, there is always a rush during the last week or so of the period, when regular customers of the station would have to be neglected or inconvenienced to take care of the inspection work. Oil companies believe it will prove more profitable over the year, to take care of their regular customers promptly for gasoline, oil and lubrication services.

Some of the independent service stations in Pennsylvania that are licensed inspection depots, add to their profits by pushing chassis lubrication and wheel bearing lubrication in connection with the periodic examinations. One operator said it was easy to sell wheel bearing lubrication, since he had to take one wheel off to inspect brake drum and lining and he could then show the car owner the neglect of lubrication at this point. This operator said, he could sell 9 wheel bearing lubrications out of 10 inspections. He also sold chassis lubrication jobs to 4 out of 10 car owners when their cars were inspected, he stated.

To induce car owners to bring their cars in early in the inspection periods and thus reduce the last-minute rushes, some stations offer special discounts on repair and adjustment work brought in during the first 30 days of the period. Charges made for work which results from the inspection are set by the individual stations, so discounts to early comers are entirely in order.

Stations say that 175 to 200 cars are the average number a station will inspect during a 3-month period. Where there are facilities to inspect only 1 car at a time, 15 or 16 cars is about all that the station can handle per day. The state fixes no fee for inspection. Garages, through their own association, fix the fee at $1.

Requirements for inspection stations are set up in 3 classifications by Pennsylvania Highway Safety Bureau.

1—In a community of less than 10,000 population, sufficient space "in the clear" must be provided for servicing 1 car. Minimum requirements are a 1-car garage, with 300 sq. ft. of floor space for inspection work, if it has a headlight tester, or 540 sq. ft. if it uses a screen to test headlights.

2—In a community of 10,000 to 45,000 population, space must be available for servicing 2 cars; 600 sq. ft. if a headlight tester is part of the equipment; 1080 sq. ft. if a screen is used.

3—In a community of more than 45,000 population, space must be available for servicing 4 cars, 900 sq. ft. with a headlight tester; 1620 sq. ft. with a screen.

Inspection stations must keep detailed records of all inspections.

One set goes to the state capitol at Harrisburg, one set to the local headquarters of the state police and the station keeps one. When a car is refused an approval windshield sticker, because of a defect, the station makes 3 rejection cards, copies being sent to the same offices. Local police barracks notifies the car owner his car will be sealed within 48 hours if the adjustments found necessary are not made. They keep their word, too.

Any car owner who thinks he is being called on to make adjustments which are not necessary to the safe operation of his car, can take it to another inspection station, or to the local barracks of the state police, who will make their own examination. Stations which are found to be "high pressuring" are likely to have their license revoked. If they are too easy with a car owner, and his car is stopped on the highway later for inspection by a state policeman and found defective, the station may also have its license revoked.

Minimum Stocks of Accessories, Equipment and Tools Required for Pennsylvania Inspection Stations

(*From* 1940 *instructions of Bureau of Highway Safety*)

Accessories

Light bulbs—assorted sizes
Insulated wire—assorted sizes
Tail-light lenses—assorted makes
Windshield Wiper, Blades, Arms, assorted
Mirrors—inside and outside types
Headlamp gaskets, assorted
Cotter pins, assorted
Reflector polish—Reflex reflectors

Equipment, Tools Owned by Station

Approved Lighting Testing Device, or
Approved Lighting Testing Screen and Output Meter

White enamel tray	Electric drill
Brake lining drill*	Assorted twist drill
Brake lining riveters*	Breast drill
Tap and die sets*	Bench grinder
Wheel pullers	Socket wrench set
Work bench	Pipe wrenches
Garage jacks	Screw extractor
Set of adjustable reamers*	Toe-in gauge
Portable lights	Soldering iron

*Need not be provided where wheel alignment, steering repairs and brake work are farmed out.

Tools Owned by Mechanic

Pliers	Hammers
Screw drivers	Cold chisels
Putty knife	Center punches
Cotter pin pullers	Hack saws
Open end wrenches	Files
Brake wrench set	Feeler gauges

Tire pressure gauge

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

TERMCO, Ser. No. 439,458, California Spray-Chemical Corp., Wilmington, Del., and Richmond, Calif. Filed Jan. 7, 1941. For parasiticides. Published: Feb. 18, 1941.

CYLREX, Ser. No. 434,674, Socony-Vacuum Oil Co. Inc., New York, N. Y. Filed Aug. 3, 1940. For refined petroleum oils for lubricating, quenching, tempering heat-transfer, power-transfer and rust prevention. Published: Feb. 18, 1941.

PRO-GAS, Ser. No. 438,710, Standard Oil Co. of California, Wilmington, Del. and San Francisco. Filed Dec. 10, 1940.
GAS disclaimed. For gas for illuminating purposes, gas for fuel purposes, gas for heating, petroleum gas, liquefied petroleum gas, propane. Published: Feb. 18, 1941.

ODRENE, Ser. No. 438,930, Givaudan-Delawanna, Inc., New York, N. Y. Filed Dec. 17, 1940. For odoriferous material, odorants for sprays and insecticides. Published: Feb. 18, 1941.

NACENE, Ser. No. 438,938, Givaudan-Delawanna, Inc., New York, N. Y. Filed: Dec. 17, 1940. For aromatic material used as odorant or deodorant in fly sprays and insecticides. Published: Feb. 18, 1941.

KEROZONE, Ser. No. 438,940, Glavaudan-Delawanna, Inc., New York, N. Y. Filed: Dec. 17, 1940. For aromatic material used as a deodorant or odorant for example in fly sprays. Published: Feb. 18, 1941.

KEROSCENT, Ser. No. 438,941, Givaudan-Delawanna, Inc., New York, N. Y. Filed: Dec. 17, 1940. For aromatic material used as a deodorant or odorant for example in fly sprays. Published: Feb. 18, 1941.

KERODOR, Ser. No. 438,942, Givaudan-Delawanna, Inc., New York, N. Y. Filed: Dec. 17, 1940. For aromatic material used as a deodorant or odorant for example in fly sprays. Published: Feb. 18, 1941.

FLORENE, Ser. No. 438,943, Givaudan-Delawanna, Inc., New York, N. Y. Filed: Dec. 17, 1940. For odoriferous material, odorants for fly sprays and insecticides. Published: Feb. 18, 1941.

ALADDIN, Ser. No. 438,965, Standard Oil Development Co., Linden, N. J. Filed: Dec. 17, 1940. For compounds for reducing cold tests and viscosity of oils, inhibitors of the antioxidant type for lubricating oils, coloring material for lubricating oils, chemical compounds for improving the viscosity temperature relationship of lubricating oils, compounding agents for use in rubber, plastics, coating compositions, paints, waxes, asphalts, resins, chewing gums and emulsions and an impregnating agent for waterproofing or otherwise protecting cloth. Published: Feb. 18, 1941.

SAFETY . . . in Oil Marketing

ADDITIONAL safe practices in oil marketing, as followed by many oil marketing companies throughout the United States are listed below.

These excerpts are from a 29-page booklet, just issued by the American Petroleum Institute and is titled "API Accident-Prevention Manual on Operation of Service Stations, Second Edition, 1941." Readers desiring copies of this manual should write to American Petroleum Institute, Room 2040, 50 W. 50th St., New York City. Single copies sell for 25c while special rates are made on orders of 5 or more.

Following excerpts are a continuation from portions which were published in NATIONAL PETROLEUM NEWS, Feb. 19, p. 34 and March 5, p. 42.

AIR SERVICE

Set Brakes and Stop Motor

The brakes should be set securely so that the car cannot roll over the attendant's hand or foot while a car is being air-serviced. The motor should be stopped to prevent the car from starting during servicing and to avoid having the attendant breathe in exhaust gases.

Correct Pressure

Tires should not be inflated beyond the pressure recommended for their size. The attendant should not crawl under the car. If tires are badly worn, the customer should be informed; for it may be advisable for such tires to be inflated to less than recommended pressure. Furthermore, the customer should be advised of the danger of using them any further.

Safe Position During Inflation

Many serious accidents have resulted when tires exploded during inflation. While tires are being inflated, the service-station attendant should be particular of the position of his body and head. Very serious accidents have occurred to the eyes. If the car has stopped at a point where the valve stem of the tire to be inflated is at or near the top of the wheel, the attendant should take a position in front of or in the rear of the tire. Then he should bend over from the waist only, so that the fender will remain between his head and shoulders and the tire. Thus, if the outer rim should blow off, the greater part of the attendant's body will be protected, and it will not receive the full force of the blow. Also, if the lower part of the tire should blow out, the rock and gravel in the driveway will not be blown into his eyes and face.

On the other hand, if the valve stem has stopped at the bottom of the tire, the attendant should squat down to one side of the tire, and partly turn his back. In this position, if a blow-out of rim or tire should occur, the attendant's face and eyes will be protected fully, and the force of the blow usually will be on the fleshy part of his arm. In any event, the attendant should not squat down facing the tire, and he should be sure to remain away from the tire. Particular care should be exercised if badly-worn tires are to be inflated.

Spare Tire in Trunk

Spare tires in rear trunk compartments present a hazard for the attendant, unless the device for holding up the door is locked securely. The safe method is to lift the door with both hands and lock the hold-up device before the air hose is picked up.

Before he begins to inflate the spare tire, attendant makes certain that door of trunk compartment is secured in the open position. Note safety sign: "Stop Your Motor. No Smoking"

EXPERIENCED OIL MEN KNOW THAT THIS "Mark" Means A DEPENDABLE PUMP because FOR MORE THAN 30 YEARS

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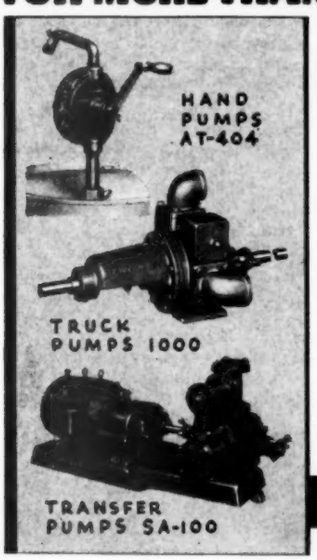

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BLACKMER PUMP COMPANY

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Truck Tires

Special precautions are necessary for the inflating of large truck tires, because the force released in a truck tire explosion is tremendous. During inflation, the hand should not be placed between the two parts of a dual tire. Locking rings should be checked to make certain they are secure. Fatal injuries during inflation have resulted when the locking rings blew off. When it is desired to inflate tires mounted on wheels detached from the vehicle, particularly truck tires mounted on rims of the lock-ring type, rails of the car lift should be raised high enough above the floor so as to permit the wheel and tire to slide under. The rails provide protection against injury in the event the locking ring should blow off. If a car lift is not available, the wheel and tire—with the locking ring *down*—should be laid on the ground or on the floor. Although this procedure will not provide complete protection in the event the ring blows off or the tube bursts, it is safer than with the locking ring up.

Child Safety

Inasmuch as children usually are not familiar with the hazards connected with the use of high pressure, whenever possible attendants should inflate children's bicycle tires. This service in the interest of child safety also will be appreciated by parents.

Air for Tires Only

The air-service hose should be used for the inflation of automobile, truck, motorcycle, and bicycle tires only. Because of the extreme danger involved, attendants should not air-service fuel tanks, automobile trailer devices, water tanks, or other pressure vessels unless there is assurance that the tank or device is equipped with a safety valve set for the correct pressure, and that the valve is in good working condition. Neither should the customer be permitted to use the air-service hose for such purpose. This precaution is important for the safety of both the customer and the attendant.

BATTERY SERVICE

Acid Burns

The lead storage battery now standard with most automobiles and trucks carries sulfuric acid, which must be handled carefully. This acid burns clothing, and is injurious to metal and to painted surfaces. It may cause pain ful skin burns or other trouble, especially if it gets into the eyes or into an open cut. After the completion of battery service, the hands should be washed thoroughly—and until the hands have been washed, they should be kept away from the face and eyes.

Protect Eyes

It is safer to brush corrosive particles from the top of a battery or from its terminals than to blow them off with air. Brushing should be done in the direction away from the body, so as to prevent particles from getting into the eyes. If work is being performed underneath a car, the attendant should avoid being directly underneath the battery so that corrosive substances will not drop into his eyes.

Safe method of lifting and carrying a heavy battery, is to use carrying straps attached to the battery

Wash Acid Out of Eyes

If the eyes should be splashed with the sulfuric-acid solution, the eyes thoroughly should be flushed with water. This flushing is done by cupping the hands under an open faucet and blinking the eyes in the pool thus formed. If a drinking fountain is at hand, the stream can be directed into the eye as the eye opens and closes. A physician should be consulted if the burn is serious.

To Remove Batteries

The best way to avoid acid burns during the removal of batteries from cars is to use the special tongs or lifting and carrying straps which grasp the terminals. These devices prevent the hands from touching the battery, and make it easy to lift the battery from the rack and carry it to the charging room.

Battery Gas is Explosive

While batteries are being charged, they give off hydrogen—an explosive gas; therefore, lighted matches, sparks, and fires of all kinds should be kept away from the top of open batteries.

Finger Rings Dangerous

Attendants should not wear finger rings while they are on duty, because there is danger of receiving a severe burn during the servicing or removal of a battery.

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Further details about this new and exclusive 100% Degummed Castor Oil Essence will be sent to you for the asking. And, a sample for your own experimentations . . . to give convincing, factual proof that here is the answer that will make your product stand aloof from competition . . . something you can really merchandise in a big way. Write Dept. E.

PAWLING REFINING CORPORATION
FOX ISLAND ROAD PORT CHESTER, NEW YORK

MARKETS

Mid-Continent

TULSA, March 15.—Advance of 0.125 to 0.25c in his quotations for 72-74 oct. "house brand" gasoline was reported by an Oklahoma refiner the past week. This refiner, formerly quoting "3.875 to 4.375c" for 72-74 oct., late in the week reported quoting "4.125 to 4.50c." The lower price, he said, was only for shipment into "restricted competitive areas." Quotations reported by other Oklahoma refiners for unrestricted open spot shipment ranged from 4.375 to 5c. An Oklahoma refiner reported advancing his contract prices "0.125c or more."

One Oklahoma refiner reported buying 33 cars of gasoline—25 cars of 80-82 Ethyl and 8 cars 60 oct. and below—from another refiner at undisclosed prices.

Wax shipments were heavy, according to two Mid-Continent refiners. Refiner offering 124-126 AMP white crude scale reported advancing his quotation 0.25c to 3c for export and domestic shipment. Refiner who had been offering 131-133 AMP for open spot sale withdrew his quotation and said he was committed for balance of March.

Lubes were in good demand for both export and domestic shipment, refiners said. Two refiners reported inquiry from another refiner for 10,000 bbls. of 150-160 D bright stock.

Sales price of Grade 26-70 natural gasoline remained unchanged at 2.625c, FOB Group 3, and 2.25c, FOB Breckenridge, according to sellers' reports. Of the sellers reporting, 3 reported quoting for open spot shipment FOB Group 3, and 3, FOB Breckenridge.

Gulf

NEW YORK, March 15.—Kerosine was offered 0.125c lower at 3.25c at the Gulf the past week, according to reports here and from the southwest. Prices for other refined products for the most part were unchanged.

Sale of an 8000-bbl. barge of 60 octane, 400 e.p. gasoline at 4.25c for lifting March 14 was reported by one refiner early in the week, and another reported selling 75,000 bbls. of "light naphtha" at 5.50c.

There was an unconfirmed report that a cargo of No. 2 fuel had been sold at 2.75c. A 75,000-bbl. cargo of No. 2 fuel at 3c and a 75,000-bbl. cargo of min. 80 octane ('39 research) gasoline at 5c were reported sold at the end of the week. A firm quotation of 4.875c also was reported on an inquiry for a cargo of min. 80 octane.

Inquiries were reported during the week for a cargo of 65 oct. unleaded gasoline, a cargo of 72-74 octane leaded, and a cargo of min. 80 octane. Three inquiries were reported by one refiner for "20,000 to 30,000 bbls." of 72 octane unleaded gasoline. Other inquiries were for two cargoes of No. 2 fuel, two cargoes of 44-45 D. I. gas oil and one and a half cargoes of 41-43 w.w. kerosine.

Atlantic Coast

NEW YORK, March 15.—Widespread advances in low quotations for gasoline were reported by Atlantic Coast suppliers during the week ended March 15. At New York, Philadelphia, Baltimore and Norfolk 72-74 octane was quoted 0.25c higher, at 5.75c. New York harbor barge price for this grade was up 0.25c to 5.50c, and similar advances were also reported at many other seaboard points.

Kerosine was quoted 0.25c lower at several southern seaboard points, with prices at Savannah, Jacksonville and Tampa at 4.875c, Mobile and Pensacola at 4.50c.

Mid-Western

CHICAGO, March 15.—Quotations for refined products remained unchanged according to refiners and tank car marketers in Chicago, during the past week. Gasoline shipments continued to increase steadily, most sellers reported.

Cold weather stimulated buying and reordering of burner fuels in this area. Industrial fuel demand was reported steady.

Open spot sales reported by 3 tank car marketers, during the week were: 3 cars of 80-82 oct., Ethyl gasoline at 4.375c; 8 cars of 72-74 oct., 1 at 3.75 and 7 at 3.875; 3 cars of 63-66 oct. at 3.50; and 5 cars of range oil, 3 cars at 3.625 and 2 cars at 3.875c.

Quotations reported by refiners ranged from 5.375 to 6c for 80-82 oct., 4.375 to 5 for 72-74 oct., 4 to 4.50 for 63-66 oct., and two refiners reported quoting 3.875c for range oil, FOB Group 3.

Quotations reported by tank car marketers ranged from 4.25 to 4.50c for 80-82 oct., 3.75 to 4c for 72-74 oct., 3.375 to 3.75c for 63-66 oct., and 3.375 to 3.875c for range oil, FOB Group 3.

Pennsylvania

CLEVELAND, March 15.—Low quotations for neutral oils were up 1c in Western Penna. the past week when several refiners reported advances in their prices. Cylinder stock, 600 flash, also was up 0.5c on the low, with prices ranging from 10 to 12c, according to reports. Demand for neutrals and cylinder oils was good, refiners said. Wax was reported scarce, and kerosine and light fuel oils also were scarce, reports indicated.

Quotations reported by refiners for 200 vis. and 150 vis. neutrals, 25 pour test, were up 1c to 22c and 20c, respectively.

Quotations reported for red petrolatum ranged from 2.25c to 2.625c, up 0.125c on the low.

California

LOS ANGELES, March 15.—Following adjustments in crude oil prices in the San Joaquin Valley and Elwood fields on March 12, referred to on page 13 in this issue, fuel oil prices were reported tighter in both the Valley and Los Angeles Basin areas. Heavy grade fuel oil ranged between $0.575 and $0.625 per bbl. and light grade, $0.65 to $0.725 per bbl.

At independent plants in the Basin area, the range of third grade gasoline was reported between 4.75-5c per gal., with only a small quantity available at the low figure. Leaded gasoline and Ethyl, at these same plants, ranged from 6 to 6.5c and 7 to 7.75c per gal., respectively, sellers reported.

On Pacific Coast export markets, quotations for cargo shipments were reported moving within narrower ranges. U. S. Motor, under 65 octane, ranged from 4.25 to 4.50c per gal., although one supplier said that he had offered a cargo of U. S. Motor at 4.25c per gallon and had not secured the business.

New Oklahoma Field Named Guthrie Pool

GUTHRIE, Okla., March 17.—Guthrie townfolks are jubilant at reports from the Mid-Continent Oil & Gas Assn.'s Standing Committee on Oil Field Nomenclature that the area near the one-time Oklahoma state capitol has been officially dubbed the Guthrie pool.

The discovery well, drilled by Sunray Oil Co., Fain Drilling Co. and Continental Oil Co. has established a 2444-bbl. potential production over a 24-hour period. Locations for 2 offset wells have been staked out, according to word here.

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

All information is supplied without guarantee as to its completeness, accuracy time of transmission or promptness of delivery.

The subscriber receives this information for his private use and not for resale or further distribution.

Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "Inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test: and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

Summary of Daily Gasoline Prices (Mar. 11 to Mar. 17)

	Latest Prices Monday, Mar. 17	Friday, Mar. 14	Thursday, Mar. 13	Wednesday, Mar. 12	Tuesday, Mar. 11
U. S. Motor, (ASTM octane)					
80-82 octane Ethyl:					
Oklahoma	4.625– 6.00	4.625– 6.00	4.625– 6.00	4.625– 6.00	4.625– 6.00
Mid-Western (Group 3 basis)	5.375–6.00 (2)	5.375–6.00 (2)	5.375–6.00 (2)	5.375–6.00 (2)	5.375–6.00 (2)
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.25– 5.50 (2)	5.50 (1)	5.50 (1)	5.50 (1)	5.50 (1)
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.625 (1)	5.625 (1)	5.625 (1)	5.625 (1)	5.625 (1)
72-74 octane:					
Oklahoma	(b) 4.375–5.00	(b) 4.375–5.00	(b) 4.375–5.00	(a) 4.375–5.00	(a) 4.375–5.00
Mid-Western (Group 3 basis)	4.375– 5.00	4.375– 5.00	4.375– 5.00	4.375– 5.00	4.375– 5.00
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.375– 5.125	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.625 (2)	4.625 (2)	4.625 (2)	4.625 (2)	4.625 (2)
63-66 octane:					
Oklahoma	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50
Mid-Western (Group 3 basis)	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.125– 5.00	4.125– 5.00	4.125– 5.00	4.125– 5.00	4.125– 5.00
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.125 (2)	4.125 (2)	4.125 (2)	4.125 (2)	4.125 (2)
60 octane & below:					
Oklahoma	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125
Mid-Western (Group 3 basis)	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	3.50 – 4.50	3.75 – 4.50	3.75 – 4.50	3.75 – 4.50	3.75 – 4.50
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	3.875 (2)	3.875 (2)	3.875 (2)	3.875 (2)	3.875 (2)
Motor Gasoline, 72-74 octane (ASTM)					
New York harbor	5.75 – 6.00	5.75 – 7.10	5.75 – 7.10	5.50 – 7.10	5.50 – 7.10
New York harbor, barges	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75	5.50	5.25 – 5.50
Philadelphia district	5.75 – 6.25	5.75 – 7.00	5.50 – 7.00	5.50 – 7.00	5.50 – 7.00
Baltimore district	5.75–5.875 (2)	5.75 – 6.75	5.75 – 6.75	5.50 – 6.75	5.50 – 6.75
Motor Gasoline:					
74-76 Octane: (L-3)					
Bradford-Warren (Western Penna.)	6.00 – 6.25	6.00 – 6.25	6.00–6.25	6.00–6.25	6.00–6.25
Other Districts (Western Penna.)	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00

REFINERY PRICES

Gasoline—U. S. Motor (ASTM Octane) except where otherwise specified

Prices Effective	Mar. 17	Mar. 10
OKLAHOMA		
80-82 oct. Ethyl	4.625– 6.00	4.625– 6.00
72-74 oct.	(b) 4.375–5.00	(a) 4.375–5.00
63-66 oct.	4.00 – 4.50	4.00 – 4.50
60 oct. & below	3.625– 4.125	3.625– 4.125
60-62 400 e.p.	3.75–4.00 (2)	3.75–4.00 (2)
MID-WESTERN (Group 3 basis)		
80-82 oct. Ethyl	5.375–6.00 (2)	5.375–6.00 (2)
72-74 oct.	4.375– 5.00	4.375– 5.00
63-66 oct.	4.00 – 4.50	4.00 – 4.50
60 oct. & below	3.625– 4.125	3.625– 4.125
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
80-82 oct. Ethyl	5.25 –5.50 (2)	5.50 (1)
72-74 oct.	4.375– 5.125	4.50 – 5.125
63-66 oct.	4.125– 5.00	4.125– 5.00
60 oct. & below	3.50 – 4.50	3.75 – 4.50
60-62, 400 e.p.	4.125–4.75 (2)	4.125–4.75 (2)
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
80-82 oct. Ethyl	5.625 (1)	5.625 (1)
72-74 oct.	4.625 (2)	4.625 (2)
63-66 oct.	4.125 (2)	4.125 (2)
60 oct. & below	3.875 (2)	3.875 (2)
CENT. W. TEX. (Prices to truck transports)		
80 oct. & above	6.00 (1)	6.00 (1)
72-74 oct.	4.50 (1)	4.50 (1)
67-69 oct.	4.00 (1)	4.00 (1)
62 oct. & below	3.625 (1)	3.625 (1)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
60 oct. & below	4.375 (1)	4.375 (1)
60-62, 400 e.p.	4.75 (1)	4.75 (1)

Prices Effective	Mar. 17	Mar. 10
KANSAS (For Kansas destinations only)		
80-82 oct. Ethyl	5.50 (1)	5.50 (1)
72-74 oct.	4.50 – 4.875	4.50 – 4.875
63-66 oct.	4.25 – 4.75	4.25 – 4.75
60 oct. & below	3.875– 4.125	3.875– 4.125
ARK. (For shipment to Ark. & La.)		
72-74 oct.	4.375 (1)	4.375 (1)
70-72 oct.	4.25 (1)	4.25 (1)
60 oct. & below	3.875 (1)	3.875 (1)
WESTERN PENNA. (Motor gasoline.)		
Bradford-Warren:		
74-76 oct. (L-3)	6.00 – 6.25	6.00– 6.25
Other districts:		
74-76 oct. (L-3)	5.75 – 6.00	5.75 – 6.00
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.: shpts. may originate at plants outside Central group)		
U.S. Motor: (Oct. L-3):		
72-74 oct.	6.50 – 7.00	6.50 – 7.00
67-69 oct.	5.75 – 6.50	5.50 – 6.50
Str. run gasoline, excluding Detroit shpt.	4.50 – 5.25	4.50 – 5.00
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	7.125	7.125
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	5.50 – 6.50	5.50 – 6.50
54-58 grav., for outside state shipment	5.00 – 6.00	5.00 – 6.00
54-58 grav., for instate shipment	4.75 – 5.50	4.75 – 5.50

Kerosine, Gas & Fuel Oils

Prices Effective	Mar. 17	Mar. 10
OKLAHOMA		
41-43 grav. w.w.	4.00 – 4.25	4.00 – 4.25
42-44 grav., w.w.	4.25 – 4.375	4.25 – 4.375
Range Oil	3.875– 4.125	3.875– 4.125
No. 1 P.W.	3.75 – 4.125	3.75 – 4.125
No. 1 straw	3.375–3.75 (2)	3.375–3.75 (2)
No. 2 straw	3.375– 3.625	3.375– 3.625
No. 2 dark	3.25 (1)	3.25 (1)
U.G.I. gas oil	3.25 (1)	3.25 (1)
No. 3 fuel	3.25 – 3.375	3.25 – 3.375
No. 6 fuel	$0.65 (1)	$0.65 (1)
14-16 fuel	$0.85 (1)	$0.85 (1)
MID-WESTERN (Group 3 basis)		
41-43 grav. w.w.	4.125– 4.25	4.125– 4.25
42-44 grav. w.w.	4.25 – 4.375	4.25 – 4.375
Range Oil	3.875 (2)	3.875 (2)
No. 1 p.w.	3.75 – 4.00	3.75 – 4.00
No. 2 straw	3.25 – 3.50	3.25 – 3.50
No. 3	3.125– 3.375	3.125– 3.375
No. 5	$0.75–$0.85 (2)	$0.75–$0.85 (2)
No. 6	$0.55–$0.60 (2)	$0.55–$0.60 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	3.75 – 4.75	4.00 – 4.75
No. 1 P.W.	3.875 (1)	3.875 (1)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
41-43 grav. w.w.	4.50–4.75 (2)	4.50–4.75 (2)
No. 1 straw	4.00 (2)	4.00 (2)
KANSAS (For Kansas destinations only)		
41-43 grav. w.w.	4.25 (1)	4.25 (1)
42-44 gravity w.w.	4.375– 4.50	4.375– 4.50
No. 1 p.w.	4.00 – 4.25	4.00 – 4.25
No. 6 fuel	$0.65 (2)	$0.65 (2)

(a) One refiner reported quoting "4 to 4.375c" for 72-74 oct., the lower price applying only to shipments into restricted competitive areas. (b) One refiner reported quoting "4.125 to 4.50c" for 72-74 oct., the lower price applying only to shipments into restricted competitive areas.

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	Mar. 17	Mar. 10
ARK. (For shipment to Ark. and La.)		
41-43 grav. w.w.	4.375 (1)	4.375 (1)
No. 1	3.875 (1)	3.875 (1)
No. 2	3.375 (1)	3.375 (1)
No. 3 fuel	3.25 (1)	3.25 (1)
Tractor fuel, for shpt. to Ark. points only	4.25 (1)	4.25 (1)
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	5.375– 5.50	5.375– 5.50
46 grav. w.w.	5.625 (1)	5.625 (1)
No. 1 fuel	5.25 – 5.375	5.25 – 5.375
No. 2 "	5.125–5.375	5.125–5.375
No. 3 "	5.375 (1)	5.375 (1)
36-40 gravity	5.25 (2)	5.25 (2)
Other districts:		
45 grav. w.w.	5.125– 5.375	5.125– 5.375
46 grav. w.w.	5.25 – 5.50	5.25 – 5.50
47 grav. w.w.	5.375– 5.625	5.375– 5.625
No. 1 fuel	4.875– 5.00	4.875– 5.00
No. 2 "	4.875– 5.00	4.875– 5.00
No. 3 "	4.625–4.875 (2)	4.625–4.875 (2)
36-40 grav., Pittsburgh dist. prices excluded	4.375– 4.625	4.375– 4.625
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group.)		
47-49 gravity w.w.	5.50 – 5.75	5.50 – 5.75
P.W. Distillate	5.50 – 5.75	5.50 – 5.65
No. 3 gas oil, Straw	5.00 – 5.25	5.00 – 5.25
U.G.I. gas oil	4.25 – 4.50	4.25 – 4.50
Fuel Oils (Vis. at 100):		
300-500 Vis.	3.75 – 4.00 (2)	3.75 – 4.00 (2)
100-300 Vis.	4.125 (1)	4.125 (1)
OHIO (S. O. Ohio quotations for statewide delivery)		
Kerosine	5.75	5.75
CALIFORNIA		
40-43 grav. w.w.	4.50 – 6.00	4.50 – 6.00
San Joaquin Valley:		
Heavy fuel	$0.575 –$0.65	$0.575 –$0.65
Light fuel	$0.65 –$0.75	$0.65 –$0.75
Diesel fuel	3.00 – 4.00	3.00 – 4.00
Stove dist.	3.00 – 5.00	3.00 – 5.00
Los Angeles:		
Heavy fuel	$0.575 –$0.65	$0.575 –$0.65
Light fuel	$0.65 –$0.75	$0.65 –$0.75
Diesel fuel	3.00 – 4.00	3.00 – 4.00
Stove dist.	3.00 – 4.00	3.00 – 4.00
San Francisco:		
Heavy fuel	$0.80	$0.80
Light fuel	$0.90	$0.90
Diesel fuel	4.50	4.50
Stove dist.	5.50	5.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Prices are given by Penna. refiners as their quotations to jobbing and compounding trade only. Prices to other refiners generally are lower.

Viscous Neutrals— No. 3 col. Vis. at 70° F.		
200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	25.50 (1)	25.50 (1)
10 p.t.	24.50 (1)	24.50 (1)
15 p.t.	23.50 (1)	23.50 (1)
25 p.t.	22.00	21.00 –22.00
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	23.50 (1)	23.50 (1)
10 p.t.	22.50 (1)	22.50 (1)
15 p.t.	21.50 (1)	21.50 (1)
25 p.t.	20.00	19.00 –20.00
Cylinder Stocks		
Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.		
10 p.t.	16.50 (1)	16.50 (1)
15 p.t.	15.50 (1)	15.50 (1)
25 p.t.	14.00 –14.50	14.00 –14.50
600 S.R. filterable	9.00 –10.00	9.00 –10.00
650 S.R.	9.00 –11.50	9.00 –11.50
600fl	10.00 –12.00	10.00 –12.00
630fl	11.00 –12.00	11.00 –12.00
MID-CONTINENT (F.o.b. Tulsa)		
Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)		
Pale Oils:		
Vis. Color		
60-85—No. 2	5.25 – 5.75	5.25 – 5.75
86-110—No. 2	5.25 – 6.25	5.25 – 6.25
150—No. 3	8.00 –10.25	8.00 –10.25
180—No. 3	8.50 –10.50	8.50 –10.50
200—No. 3	8.50 –11.00	8.50 –11.00
250—No. 3	10.00 –12.00	10.00 –12.00
280—No. 3	10.50 –13.75	10.50 –13.75
300—No. 3	11.50 –14.25	11.50 –14.25

Lubricating Oils (Cont'd)

Prices Effective	Mar. 17	Mar. 10
Red Oils:		
180—No. 5	8.50–9.50 (2)	8.50–9.50 (2)
200—No. 5	8.50–10.50 (2)	8.50–10.50 (2)
280—No. 5	12.50 (1)	12.50 (1)
300—No. 5	11.00 –12.50	11.00 –12.50

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stock—Vis. at 210°		
200 Vis. D	18.00 (1)	18.00 (1)
150-160 Vis. D:		
0 to 10 p.p.	13.50 –16.00	13.50 –16.00
10 to 25 p.p.	13.00 –15.50	13.00 –15.50
25 to 40 p.p.	12.50–15.00 (2)	12.50–15.00 (2)
150–160 vis. E	12.50 –15.00	12.50 –15.00
120 Vis. D:		
0 to 10 p.p.	12.50 –15.25	12.50 –15.25
25 to 40 p.p.	14.375 (1)	14.375 (1)
600 S.R. Dark Green	7.00 (2)	7.00 (2)
600 S.R. Olive Green	8.00 – 9.50	8.00 – 9.50
631 S.R.	12.00 (1)	12.00 (1)
Black Oil	4.00–5.50 (2)	4.00–5.50 (2)

SOUTH TEXAS Neutral Oils

Vis. Color		
Pale Oils: (*Vis. at 100°F*)		
100 No. 1½-2½	5.25 – 5.50	5.25 – 5.50
200 No. 2-3	7.25	7.25
300 No. 2-3	7.75	7.75
500 No. 2½-3½	8.50	8.50
750 No. 3-4	8.75	8.75
1200 No. 3-4	8.875	8.875
2000 No. 4	9.00	9.00
Red Oils:		
100 No. 5-6	5.25 –5.50 (2)	5.25 –5.50 (2)
200 No. 5-6	7.25	7.25
300 No. 5-6	7.75	7.75
500 No. 5-6	8.50	8.50
750 No. 5-6	8.75	8.75
1200 No. 5-6	8.875	8.875
2000 No. 5-6	9.00	9.00

CHICAGO (From Mid-Continent p.l. crude.)

Neutral Oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils Vis. Color		
60-85—No. 2	7.25 (1)	7.25 (1)
86-110—No. 2	7.25 (1)	7.25 (1)
150—No. 3	8.50 (1)	8.50 (1)
180—No. 3	9.50 (1)	9.50 (1)
200—No. 3	10.00 (1)	10.00 (1)
250—No. 3	11.00 (1)	11.00 (1)
Red Oils:		
180—No. 5	9.50 (1)	9.50 (1)
200—No. 5	9.50 (1)	9.50 (1)
250—No. 5	11.00 (1)	11.00 (1)
280—No. 5	12.00 (1)	12.00 (1)
300—No. 5	12.00 (1)	12.00 (1)

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)		
140	8.75 (1)	8.75 (1)
160	9.50 (1)	9.50 (1)
200	10.50 (1)	10.50 (1)
Bright stocks, 160 vis. at 210, No. 8 color:		
0 to 10 p.p.	15.00 (1)	15.00 (1)
15 to 25 p.p.	14.00 (1)	14.00 (1)
30 to 40 p.p.	13.50 (1)	13.50 (1)
E filtered Cyl. Stock	12.50 (1)	12.50 (1)

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3		
Grade 26-70	2.625 (Sales)	2.625 (Sales)
FOB BRECKENRIDGE		
Grade 26-70	2.25 (Sales)	2.25 (Sales)
CALIFORNIA (FOB plants in Los Angeles basin)		
75-85, 350-375 e.p. for blending	4.50 – 4.75	4.50 – 4.75

Naphtha and Solvent

Prices Effective	Mar. 17	Mar. 10
(FOB Group 3)		
Stoddard solvent	5.50 – 5.875	5.50 – 5.875
Cleaners' naphtha	6.00 – 6.375	6.00 – 6.375
V. M. & P. naphtha	6.00 – 6.375	6.00 – 6.375
Mineral spirits	5.00 – 5.375	5.00 – 5.375
Rubber solvent	6.00 – 6.375	6.00 – 6.375
Lacquer diluent	6.25 – 7.375	6.25 – 7.375
Benzol Diluent	7.875– 8.375	7.875– 8.375
WESTERN PENNA		
Untreated naphtha	5.50 – 5.75	5.50 – 5.75
Stoddard solvent	6.00	6.00
OHIO (S. O. Ohio quotations for statewide delivery):		
V.M.&P. naphtha, D.C. naphtha, Special Varnolene, Varnolene & Sohio solvent	8.75	8.75
Rubber solvent	8.25	8.25

Wax

White Crude Scale:

WESTERN PENNA. (Bbls. C.L., N. Y.)		
122-124 A.m.p.	2.75 –3.00 (2)	2.75 (2)
124-126 A.m.p.	2.75 –3.00	2.75
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-6 AMP.	3.00 (1)	2.75 (1)
131-3 AMP.	....	3.25 (1)
CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods: add 3° F. to convert into AMP.)		
Fully refined:		
122-124 (bags only)	5.60	5.60
125-127	5.60	5.60
127-129	5.85	5.85
130-132	6.15	6.15
132-134	6.40	6.40
135-137	7.15	7.15

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)			
Snow White	5.125– 6.125	5.125– 6.125	
Lily White	4.375– 5.125	4.375– 5.125	
Cream White	3.375– 4.125	3.375– 4.125	
Light Amber	2.625– 3.25	2.625– 3.25	
Amber	2.375– 2.875	2.375– 2.875	
Red	2.25 –2.625	2.25 –2.625	

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline Kerosine		Distillate-Gas Oil-Fuel Oil	
	Cents per Cwt.	Cents per gal. 6.6 lbs.	Cents per Cwt.	Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	2.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	49	3.234	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Grand Rapids, Mich.	58.5	3.861	**50	**3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Minneapolis-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
Wichita				
From Ponca City	7.5	*0.495	7.5	†0.555
From Tulsa	12.5	*0.825	12.5	†0.925
From Cushing	11	*0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators, FOB their terminals)—Prices Effective Mar. 17

MOTOR GASOLINE

District:	Min. 80 Oct. '39 Research (Max. 2 cc. Lead)	72-74 Oct. (ASTM)	68-70 Oct. (ASTM)	65-67 Oct. (ASTM)	60-64 Oct. (ASTM)
N. Y. Harb.	5.75 – 7.10	5.75 – 6.00	5.75	5.75 (2)	....
N. Y. Harb., barges	5.75 – 6.20	5.50 – 5.75	5.50 (2)	5.50 (2)	....
Albany	6.30 – 6.60	....	....	....	....
Philadelphia	5.75 – 7.25	5.75 – 6.25	5.50 – 6.75	6.75 (1)	....
Baltimore	5.75 – 6.75	5.75 –5.875 (2)	5.50–5.75 (2)	5.50 (1)	....
Norfolk	5.75 – 7.05	5.75	5.75 – 6.50	5.50 (2)	....
Wilmington	6.00 – 7.00	5.75 (2)	5.875– 6.50	5.50 (2)	....
Charleston	6.25 – 6.60	5.75 (1)	5.875–6.00 (1)	5.50 –5.75 (2)	....
Savannah	5.875– 6.50	6.00 (1)	5.875– 6.00	....	5.875 (1)
Jacksonville	5.875– 6.50	6.00 (1)	5.875– 6.25	5.625 (1)	5.875 (1)
Miami	5.875– 6.50 (2)	....	5.875–6.00 (1)	5.00 (1)	....
Tampa	5.875– 6.50	6.00 (1)	5.875–6.25 (2)	5.625 (1)	....
Pensacola	5.75–6.00 (1)	....	5.50–5.75 (1)	....	....
Mobile	5.375–6.00 (2)	....	5.375–5.625 (1)	5.125 (1)	....
Portland	5.70 – 6.90	....	....	....	....
Boston	5.70 – 6.80	6.00 – 6.80	6.00 –6.15 (2)	6.00 – 6.55	....
Providence	5.60 – 6.80	6.15–6.90 (2)	....	6.55 (1)	....

FUEL OILS

	KEROSINE and/or NO. 1 FUEL	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	4.60	4.00	4.00	$1.55	$1.25
N. Y. Harb., barges	4.50	3.90	3.90	....	....
Albany	5.10	4.40	4.40(1)	$1.85 (1)	$1.45 (1)
Philadelphia	4.75 – 5.00	4.25	4.25	$1.37 –$1.47	$1.25
Baltimore	4.75	4.25	4.25	$1.47 (1)	$1.25
Norfolk	4.75 – 5.00	4.25	4.25	.....	$1.25 (2)
Wilmington	4.75 – 5.00	4.25	....	.....	....
Charleston	4.75 – 5.00	4.25 (2)	....	.....	$1.20 (2)
Savannah	4.875 – 5.25	....	....	.....	$1.20 (1)
Jacksonville	4.875 – 5.25	4.25 (1)	4.25 (1)	.....	$1.20 (1)
Miami	4.875–5.25 (2)	....	....	.....	....
Tampa	4.875 – 5.25	4.25 (1)	....	.....	$1.15 (1)
Pensacola	4.50 – 4.75 (1)	....	....	.....	....
Mobile	4.50 – 4.75	....	....	.....	....
Portland	5.00	4.40	4.40	$1.85 (1)	$1.25 –$1.45
Boston	4.90	4.30	4.30	$1.55 (2)	$1.25
Providence	4.90	4.30	4.30	$1.50 –$1.55	$1.25

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers (Ex Lighterage)	Diesel Oil Shore Plants	Gas House Gas Oil 28-34 Gravity
N. Y. Harbor	$1.25	$1.65	1.30	1.40
Albany	$1.45 (1)	$1.85	1.40	1.50
Philadelphia	$1.25	$1.75	....	....
Baltimore	$1.25	$1.75	1.25	1.25
Norfolk	$1.25	$1.75	1.25	1.25
Charleston	$1.20	$1.75	1.25	1.25
Savannah	$1.20 (1)	$1.89 –$1.995	....	....
Jacksonville	$1.20	$1.89 –$1.995	....	....
Tampa	$1.15	$1.89 –$1.995	....	....
Portland	$1.25 –$1.45	$1.75 – $1.95	1.40	1.50
Boston	$1.25	$1.65	1.30	1.40
Providence	$1.25	$1.65	1.30	1.40

New York Export Lubes

(Penna. Products in bbls. FAS New York)

Prices Effective	Mar. 17	Mar. 10
Bright stock:		
Light, 25 p.t.	22.00 (1)	22.00 (1)
Neutral oil:		
150 3 color, 25 p.t.	25.50 (1)	25.50 (1)
600 s.r., unfilt.	18.00 (1)	18.00 (1)
650 s.r., unfilt.	18.25 (1)	18.25 (1)
600 fl. s.r.	18.50 (1)	18.50 (1)
630 ℘., s.r.	20.00 (1)	20.00 (1)

Wax

(Melting points are AMP, 3° higher than EMP. Export prices FAS c.l. Domestic prices FOB, in bags, c.l. Scale solid; fully refined slabs.)

Prices Effective Mar. 17

	New Orleans Export	N. Y. Domestic	N. Y. Export
Crude Scale:			
124-6 Yellow	2.75 (1)	.....	2.75 (1)
122-4 White	....	2.75–3.00	2.75–3.00
124-6 White	2.75–3.00 (2)	2.75–3.00	2.75–3.00
Fully Refined:			
123-5	....	5.60 (a)	5.60 (2)
125-7	5.60 (1)	5.60 (a)	5.60
128-30	5.60 (1)	5.60–5.70	5.60
130-2	5.85 (1)	5.85	5.85
133-5	6.15 (1)	6.15	6.15
135-7	6.40 (1)	6.40 (2)	6.40
108-11 White Match wax (tight bbls.)			3.25 (1)

Naphtha

Prices Effective Mar. 17	V.M.&P. Naphtha	Mineral Spirits
Baltimore	9.50	8.00
New York Harbor	9.00 – 9.50	8.30 – 8.50
Philadelphia district	10.00	8.00 – 9.00
Boston	9.00	8.75 – 9.25
Providence	9.00	8.75

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Mar. 17	Mar. 10
375 e.p. blend, 70 oct.	4.75 –5.125	4.75 –5.125
390 e.p. blend, 68 oct.	4.625–4.875	4.625–5.00
390 e.p. blend, 66 oct.	4.50 – 4.75	4.50 – 4.875
400 e.p. blend, 65 oct. min.	4.375 – 4.625	4.375 –4.75
U. S. Motor, under 65 octane	4.25 – 4.50	4.25 – 4.625
38-40 grav. w.w. kero., 150 fire point	4.50 – 5.00	4.50 –5.00
41-43 grav., w.w. kero.	4.75 – 5.00	4.75 – 5.00
44 grav., w.w. kero.	5.00 – 5.50	5.00 – 5.50
Diesel fuel, 24 & above	$1.25 –$1.30	$1.25 –$1.30
Diesel fuel, under 24	$1.15 –$1.25	$1.15 – $1.25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1.25 – $1.35	$1.25 – $1.35
Grade C fuel, Pac. Spec. 400	$0.625–$0.75	$0.625 $0.75
In Ship's Bunkers, or deep tank lots:		
Diesel fuel, Pac. Spec. 200	$1.35 –$1.45	$1.35 – $1.45
Grade C fuel, Pac. Spec. 400	$0.70 –$0.75	$0.70 –$0.75

Pacific Export (Cont'd)

Prices Effective	Mar. 17	Mar. 10
Cased Goods: (Per case)		
U. S. Motor	$1.35 – $1.45	$1.35 –$1.45
375-400 e.p. blend, 65 oct. & above	$1.50 –$1.60	$1.50 –$1.60
400 e.p. blend, under 65 oct.	$1.40 – $1.50	$1.40 –$1.50
40-43 grav. w.w. kero., 150 fire point	$1.30 – $1.40	$1.30 –$1.40
Kero., p.w.	$1.25 –$1.35	$1.25 –$1.35

Tanker Rates

(Approximate rates. Cents per bbl.)

Gulf-N. Atlantic: (not E. of N.Y.)	Last Paid	Owners Ask
Hvy. Crude & Fuel (10 to 19.9 gravity)	50	..
Light Crude, (30 grav. or Lighter)	44	..
Gasoline	40	..
Kerosine	42	..
No. 2 Fuel	45	..

(a) No rate for light crude in last "dirty" fixture.

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf, for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

Prices Effective Mar. 17

Motor Gasoline Domestic	
Min. 80 oct. '39 Research, max. 2cc lead	5.00 – 5.375
60-62, Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	4.50 – 5.25
70 oct. unleaded "	5.25 – 5.50
68 oct. " "	4.75 – 5.00
65 oct. " "	4.25 – 4.75
60 oct. "	4.25
41-43 w.w. kerosine	3.25 – 3.50
No. 2 fuel	3.00 – 3.25
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	2.875 – 3.00
43-47 " "	2.875 – 3.125
48-52 " "	2.875 – 3.25
53-57 " "	3.25 – 3.50
58 & above diesel index	3.625 – 3.75
Diesel Oil, ships' bunkers (ex-lighterage)	$1.35 – $1.50
Bunker C, " " "	$0.80 –$0.85
Bunker C, cargoes	$0.75 – $0.80
Motor Gasoline Export	
60-62 Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	4.50 – 5.25
70 oct. unleaded "	5.25 – 5.50
68 oct. " "	4.75 – 5.00
65 oct. " "	4.25 – 4.75
60 oct. "	4.25
61-63 Gravity, Max. 390 e.p.	
72-74 oct. leaded (ASTM)	4.625
60 oct. unleaded "	4.25
64-66 Gravity, Max. 375 e.p.	
72-74 oct. leaded (ASTM)	4.625
60 oct. unleaded "	4.25
41-43 w.w. kerosine	3.25 – 3.50
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	2.875 – 3.00
43-47 " "	2.875 – 3.125
48-52 " "	2.875 – 3.25
53-57 " "	3.25 – 3.50
58 & above diesel index	3.625 – 3.75

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk FOB terminals)

	Mar. 17 New Steel Drums	Bulk
200 vis. D. 210 brt. stock	25.50 –25.80 (2)	19.80 (2)
150 vis. D 210 brt. stock 0-10 p.p.	21.50–21.80 (2)	15.80 (2)
10-25 p.p.	21.00 (1)	15.30 (1)
100 vis. D 210 brt. stock 0-10 p.p.	21.00 (1)	15.30 (1)
10-25 p.p.	20.50 (1)	14.80 (1)
200 vis. No. 3 col. neutral; 0-10 p.p.	17.00 (1)	11.30 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk exprt. shp., FOB terminals)

Unfiltered Pale Oils: Vis. Color	Mar. 17	Mar. 10
100 No. 3	6.00	6.00
200 No. 3	7.50	7.50
300 No. 3	8.00	8.00
500 No. 3½	9.00	9.00
750 No. 4	9.50	9.50
1200 No. 4	10.00	10.00
2000 No. 4	10.25	10.25
Red Oils:		
Vis. Color		
100 No. 5-6	6.00	6.00
200 No. 5-6	7.50	7.50
300 No. 5-6	8.00	8.00
500 No. 5-6	9.00	9.00
750 No. 5-6	9.50	9.50
1200 No. 5-6	10.00	10.00
2000 No. 5-6	10.25	10.25

(a) 0.4c discount generally given for slabs loose.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb. 21, 1940. These prices in effect Mar. 17, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	6.8	8.1	4.5	7.2
*Newark, N. J.	6.8	8.1	4.5	7.2
Annapolis, Md.	7.35	8.85	5.5	9.5
Baltimore, Md.	6.75	8.25	5.5	8
Cumberland, Md.	8.15	9.65	5.5	10
Washington, D. C.	7	8.5	3.5	9
Danville, Va.	7.95	10.45	6.5	9
Norfolk, Va.	6.75	9.25	6.5	9.5
Petersburg, Va.	7.05	9.55	6.5	10.5
Richmond, Va.	7.05	9.55	6.5	10.5
Roanoke, Va.	8.25	10.75	6.5	10
Charleston, W. Va.	7.55	10.05	6.5	11.5
Parkersburg, W. Va.	6.85	9.35	6.5	11.2
Wheeling, W. Va.	7.85	8.9	6.5	11.8
Charlotte, N. C.	8.9	9	7.5	9.8
Hickory	9.45	10.95	7.5	9.7
Mt. Airy, N. C.	9.3	8.5	7.5	10.4
Raleigh, N. C.	8.65	9.5	7.5	9.7
Salisbury, N. C.	8.95	8	7.5	10.1
Charleston, S. C.	6.75	9.25	7.5	....
Columbia, S. C.	7.6	10.1	7.5	....
Spartanburg, S. C.	8.3	10.8	7.5	....

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J.	10.5	14.5
Baltimore, Md.	15	....
Washington, D. C.	15	....

Fuel Oils—T.W.	No. 1	No. 2	No. 3
Atlantic City, N. J.	7.2	6	6
Newark	7.2	6	6
Annapolis, Md.	....	6.5	....
Baltimore	7	6.25	5.75
Washington, D. C.	7.6	6.75	6.75
Norfolk, Va.	7	6	6
Petersburg	7.25	6.25	....
Richmond	7.25	6.25	6.25
Charlotte, N. C.	8.8	7.6	....
Hickory	....	7.25	....
Raleigh	8.7	7.3	....
Charleston, S. C.	....	6.3	....
Columbia	....	7.3	....
Spartanburg	....	8	....

*Effective March 4, '41, minimum retail resale price of 10.9c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w. price, thru territory, except New Jersey. While above posted prices continue at Atlantic City and Newark, dealers will pay net price of 7.8c per gal. for Esso; dealers having pumps marked only Esso, Esso Extra and Standard White gasoline will pay 7.3c per gal. for Esso.

Kerosene—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price: Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Com. T.C.	Com. Cons. T.W.	Undiv. Dlr. T.W.	Gasoline Taxes
New York City:				
Manhattan & Bronx	7.3	7	7.5	*5.5
Kings & Queens	7.3	7	7.5	*5.5
Richmond	7.3	7	7.5	*5.5
Albany, N. Y.	7.6	7.3	7.8	5.5
Binghamton, N. Y.	8.3	8	8.5	5.5
Buffalo, N. Y.	7.8	7.5	8	5.5
Jamestown, N. Y.	7.8	7.5	8	5.5
Plattsburg, N. Y.	8.6	8.3	8.8	5.5
Rochester, N. Y.	8	7.7	8.2	5.5
Syracuse, N. Y.	7.3	7	6.5	5.5
Bridgeport, Conn.	7.7	7.4	7.9	4.5
Danbury, Conn.	8.2	7.9	8.4	4.5
Hartford, Conn.	8.3	8	8.5	4.5
New Haven, Conn.	7.7	7.4	7.9	4.5
Bangor, Me.	7.6	7.3	8.6	5.5
Portland, Me.	7.2	6.9	8.2	5.5
Boston, Mass.	6.8	6.5	7.3	4.5
Concord, N. H.	8.6	8.3	8.8	5.5
Lancaster, N. H.	9.7	9.4	9.9	5.5
Manchester, N. H.	8.3	8	7.5	5.5
Providence, R. I.	6.8	6.8	7.9	4.5
Burlington, Vt.	8.6	8.3	8.8	5.5
Rutland, Vt.	8.7	8.4	8.9	5.5

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y.	9.6	10.3
†New York City	8.8	9.5
Rochester, N. Y.	10.5	11.2
Syracuse, N. Y.	11.3	....
Boston, Mass.	11	11
Bridgeport, Conn.	11.5	12
Hartford, Conn.	11	11.5
Providence, R. I.	11	12

	Kerosine Yard	Kerosine T.W.	Mobilfuel Diesel TC	Mobilfuel Diesel T.W.	Mobilheat Fuel Yard	Mobilheat Fuel T.W.
New York:						
Manhat'n & Bronx	....	7.3	....	6.5	....	6
Kings & Queens	4.8	7.3	....	6.5	4.2	6
Richmond	4.9	7.5	....	6.5	4.3	6.2
Albany	5.3	7.3	4.6	6.6	4.6	6.3
Binghamton	7	9	....	....	6.1	7.6
Buffalo	6.2	8	5.7	7.7	5.5	7.2
Jamestown	5.9	8	....	....	5.2	6.7
Plattsburg	5.9	7.9	....	....	5.2	6.7
Rochester	6.6	8.6	....	....	5.6	7.1
Syracuse	6.5	8.5	....	....	5.8	7.3
Conn.:						
Bridgeport	5.4	7.3	....	....	4.6	5.7
Danbury	5.9	7.8	....	....	5.1	6.2
Hartford	4.9	6.8	....	6.4	4.4	6.2
New Haven	4.8	6.8	....	....	4.2	5.8
Maine:						
Bangor	5.6	7.6	....	....	5	6.5
Portland	5.4	7.5	4.8	6.8	4.8	6.3
Mass.:						
Boston	5.3	7.6	4.7	6.7	4.7	6.3
N. H.:						
Concord	6.1	8.1	....	....	5.8	7.3
Lancaster	7.2	9.2	....	....	6.8	8.3
Manchester	6.2	8.5	....	....	5.5	7
R. I.:						
Providence	5.3	7.4	4.7	6.7	4.7	6.2
Vermont:						
Burlington	5.9	7.9	....	....	5.1	6.5
Rutland	6.1	8.1	....	....	5.3	6.8

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals. annually; for quantities under 1000 gals. annually, add 0.5c per gal.

Discounts: Gasoline—To undivided dealers, 0.5c less than divided dealer t.w. Diesel—On t.w. deliveries, 0.5c for at least 400 gals.; 1c for full tank truck.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.C.	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	7	8	5.5	9.5
Pittsburgh	7.5	9.5	5.5	10.5
Allentown	7.5	9	5.5	10.5
Erie	7	9.5	5.5	10
Scranton	7.5	9	5.5	10.5
Altoona	7.5	9.5	5.5	10.5
Emporium	7.5	9.5	5.5	10.5
Indiana	7.5	9.5	5.5	10.5
Uniontown	7.5	9.5	5.5	10.5
Harrisburg	7.5	9	5.5	10.5
Williamsport	7.5	9	5.5	10
Dover, Del.	....	8.5	5.5	10.5
Wilmington, Del.	....	8	5.5	10
Boston, Mass.	....	7.4	4.5	7.9
Springfield, Mass.	....	7.2	4.5	8.6
Worcester, Mass.	....	7.5	4.5	7.5
Fall River, Mass.	....	7.9	4.5	8.1
Hartford, Conn.	....	7.5	4.5	7.8
New Haven, Conn.	....	7.3	4.5	8.4
Providence, R. I.	....	7.9	4.5	8.1
Atlantic City N. J.	....	7.8	4.5	7.2
Camden, N. J.	....	7.8	4.5	7.2
Trenton, N. J.	....	7.8	4.5	7.2
Annapolis, Md.	....	8.85	5.5	8
Baltimore, Md.	....	8.25	5.5	7
Hagerstown, Md.	....	9.35	5.5	7.6
Richmond, Va.	....	9.55	6.5	11
Wilmington, N. C.	....	9.35	7.5	9.2
Brunswick, Ga.	....	7.5	7.5	*9
Jacksonville, Fla.	....	7.5	8.5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa.	12	14.5
Lancaster, Pa.	13.5	16
Pittsburgh, Pa.	14.5	14.5

Fuel Oils—T.W.	1	2	3	5	6
Phila., Pa.	7.5	6	6	4.25	3.50
Allentown, Pa.	8.5	6.5	6.5	....	....
Wilmington, Del.	8.00	6	6	....	....
Springfield, Mass.	8.6	6.4	6.4	....	....
Worcester, Mass.	7.5	6.7	6.7	....	....
Hartford, Conn.	7.8	6.2	6.2	....	....

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

Naphthas—Philadelphia, 200 gals. or more at one time, 2c off, Lancaster, contract buyers taking 1000 gals. or more per year, one drum up, 2c off; non-contract buyers, 200 gals. or more at one time, 2c off. Pittsburgh, 500 gals. or more at one time, 2c off.

S. O. Ohio††

Sohio X-70 Gasoline (*Regular Grade*)

	Consumer T.W.	Resellers	Gasoline Taxes	Kerosine T.W.
		**Resellers	‡S.S.	†
Ohio, Statewide	10.5	9	12.5	5.5	8
Akron	10.5	7.5	9.5	5.5	8
Cincinnati	10.5	7.5	10	5.5	8
Cleveland	10.5	8	11	5.5	8
Columbus	10.5	8	11	5.5	8
Dayton	10.5	7	9.5	5.5	8
Marietta	10.5	8	10.5	5.5	8
Portsmouth	10.5	8.5	11.5	5.5	8
Toledo	10.5	7.5	10	5.5	8
Youngstown	10.5	8	11	5.5	7.5

Aviation Gasoline—Statewide

	Consumer T.W.	Gasoline Taxes
Sohio Aviation	14.5	5.5
Esso Ethyl Aviation 74 Oct.	15.5	5.5
Esso Ethyl Aviation 80 Oct.	16.5	5.5
Esso Ethyl Aviation 87 Oct.	17.5	5.5
Esso Ethyl Aviation 90 Oct.	17.5	5.5
Esso Ethyl Aviation 100 Oct.	24.5	5.5

†Naphthas—T.W.	Statewide	Lucas County
S. R. Solvent	12.75	12.75
D.C. Naphtha	13.25	13
V.M.&P. Naphtha	13.25	13
Varnolene	13.25	13
Sohio Solvent	13.25	13

Fuel Oils—T.W.	No. 1	No. 2	No. 3	No. 4
Ohio, Statewide	7.5	7.5	7	....
Cleveland	9.5	9.5	9.0	6.75

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

**Except authorized agents.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 1c state tax.

‡Prices at company-operated stations.

††Statewide prices are subject to exceptions other than those shown.

Discounts:

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Fuel Oils—Statewide prices are for t.w. & drum deliveries of 50 gals. or more; prices for deliveries of less than 50 gals. are 0.5c higher. Cleveland Nos. 1, 2, and 3 prices are for bulk deliveries of 5 to 99 gals.; 100 gals. and over are 2c less. Cleveland No. 4 price is for full compartment hose dump only.

Naphthas—to contract consumers off t.w. prices—Statewide: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c. Lucas County: Less than 50 gals., tank wagon price; 50 to 249 gals., 0.5c; 250 to 499 gals., 1c; 500 gals. or over, 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)
Standard (*Third Grade*)

	†Net Crown	Dealer Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	7	6.5	6.5	9
Lexington, Ky.	9	7	6.5	9
Louisville, Ky.	8.5	6.5	6.5	8.5
Paducah, Ky.	6	5.5	6.5	6.5
Jackson, Miss.	6.5	5.5	7.5	*8.5
Vicksburg, Miss.	8	7	7.5	*8
Birmingham, Ala.	8	7	*8.5	8
Mobile, Ala.	7.5	6	*9.5	8
Montgomery, Ala.	8.5	7.5	*9.5	*9
Atlanta, Ga.	7.5	6.5	7.5	*8
Augusta, Ga.	8.5	7.5	7.5	*8.5
Macon, Ga.	7.5	6.5	7.5	*8
Savannah, Ga.	8	7	7.5	*8
Jacksonville, Fla.	7.5	6.5	8.5	8
Miami, Fla.	7.5	6.5	8.5	8
Pensacola, Fla.	7.5	6.5	*9.5	8
Tampa, Fla.	7.5	6.5	8.5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices.

S. O. Indiana

Red Crown (*Regular Grade*)
Standard (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown	Dealer Prices Stanolind	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	10.1	8.1	6.4	4.5	10
Decatur, Ill.	10.1	8.6	6.2	4.5	8.5
Joliet, Ill.	11.1	9.6	6.7	4.5	10
Peoria, Ill.	11.1	8.7	8.1	4.5	10
Quincy, Ill.	10.9	9.4	8.1	4.5	9.8
Indianapolis, Ind.	11.3	9.3	8.9	5.5	*10
Evansville, Ind.	11.1	8.9	8	5.5	*9.8

(Continued on next page)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb. 21, 1940.*

These prices in effect Mar. 17, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. Indiana (Cont'd)

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown	Stanolind	Gasoline Taxes	Kerosine T.W.
South Bend, Ind.	11.3	9.8	8.8	5.5	*10
Detroit, Mich.	9.6	8.1	7.1	4.5	8.1
Grand Rapids, Mich.	9.8	8.3	8	4.5	9.1
Saginaw, Mich.	10.4	8.9	8.4	4.5	9.1
Green Bay, Wis.	11.9	10.4	7.5	5.5	10.8
Milwaukee, Wis.	11.3	9.8	9.3	5.5	10.2
La Crosse, Wis.	11.5	10	9.5	5.5	10.4
Minneapolis-St. Paul	11.5	9.7	7.3	4.5	10.4
Duluth, Minn.	11.9	10.4	9.9	4.5	10.8
Mankato, Minn.	11.5	10	8.5	4.5	9.5
Des Moines, Ia.	10.9	9.4	7.9	4.5	*9.8
Davenport, Ia.	11.1	9.6	9.1	4.5	*10
Mason City, Ia.	11.3	9.8	6.9	4.5	*10.2
St. Louis, Mo.	10.2	8.7	7	*4.5	9.6
Kansas City, Mo.	10.4	7.4	6.4	*4.5	8.6
St. Joseph, Mo.	10.4	8.5	7.5	*4.5	8.4
Fargo, N. D.	12.7	11.2	9	5.5	11.6
Huron, S. D.	12	10.5	10	5.5	10.9
Wichita, Kans.	9.3	7.8	5.5	4.5	7.2

Stanavo Aviation 73 Octane

Chicago, Ill.	14.9		
Detroit, Mich.	16.5	4.5	
Milwaukee, Wis.	15.1	5.5	
Minneapolis, Minn.	15.3	4.5	
St. Louis, Mo.	14.5	*4.5	
Kansas City, Mo.	14.1	*4.5	
Fargo, N. D.	16.5	5.5	
Huron, S. D.	15.8	5.5	

	Oleum Spirits	V.M.&P. Naphtha	Stanisol	*Taxes
(Prices are base prices before discounts)				
Chicago	12.7	13	12.4	4.5
Detroit	15.2	14.2	15.7	4.5
K. C., Mo.	12.8	13.8	13.3	1.5
St. Louis	13.2	14.2	12.4	1.5
Milwaukee	13.8	14.8	14.3	5.5
Minneap'ls	14	15	12.7	4.5

	Fuel Oils T.W. Standard Heater Oil Chicago:
1-99 gals.	9
100-149 gals.	8
150 gals. & over	7.5

	Stanolex No. 1	Stanolex Furnace Oil
1-99 gals.	8.5	8.5
100-399 gals.	7.5	7.5
400 gals. & over	7	7

	Stanolex Fuel Oil A	Stanolex Fuel Oil B
1-399 gals.	6	6
400-799 gals.	5	5
800 gals. & over	4.75	4.75

	Stanolex Bunker C Fuel Oil
1-999 gals.	4.75
1000 gals. & over	3.75

Other Points:	Stanolex No. 1	Stanolex Furnace Oil
Indianapolis		
1-99 gals.	...	*8.5
100 gals. & over	...	*7.5
Detroit		
1-99 gals.	...	7.6
100 gals. & over	...	6.6
Milwaukee		
1-99 gals.	9.2	8.7
100 gals. & over	8.2	7.7
Minneapolis		
1-99 gals.	8.2	8.2
100 gals. & over	...	7.2
100-199 gals.	7.7	...
200 gals. & over	7.2	...
St. Louis		
1-99 gals.	8	7.5
100 gals. & over	7	6.5
Kansas City		
1-49 gals.	7.8	...
50 gals. & over	6.8	...
1-99 gals.	...	7.8
100 gals. & over	...	6.8

***Taxes:** In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax: Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1.5c federal tax and state taxes.

†Prices for small-lot deliveries range up to 2c higher than above prices.

S. O. Nebraska

Standard Red Crown Gasoline (*Regular Grade*)

	T.W. Dealer	Gasoline Taxes	Kerosine T.W.
Omaha	10.9	9.4	6.5	9.8
McCook	11	7.9	6.5	9.5
Norfolk	11	9.4	6.5	9.9
North Platte	11.3	9.5	6.5	10.2
Scottsbluff	11.4	8.5	6.5	10.8

S. O. Louisiana

Esso Gasoline (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
New Orleans, La.	5.75	8.25	8.5	*9
Baton Rouge, La.	6.25	8.75	8.5	*9.5
Alexandria, La.	6.25	8.75	8.5	*9.5
Lafayette, La.	6.5	9	8.5	*9
Lake Charles, La.	6.25	8.75	8.5	*9
Shreveport, La.	5.5	8	8.5	*9
Knoxville, Tenn.	9.5	11.5	8.5	12.5
Memphis, Tenn.	6.5	8.5	8.5	11
Chattanooga, Tenn.	9	8.85	8.5	11
Nashville, Tenn.	8.5	9	8.5	10
Bristol, Tenn.	9.75	9.75	8.5	12
Little Rock, Ark.	6.75	8.5	8	10

*Louisiana kerosine prices are ex 1c state tax.

Discounts:

Esso Gasoline—To individed dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (Regular Grade)
Thriftane (*Third Grade*)

	Humble *Tank Wagon	Humble Retail	Thriftane *Tank Wagon	Thriftane Retail	Gasoline Taxes
Dallas, Tex.	†6	9	5	8	5.5
Ft. Worth, Tex.	6	10	5	8	5.5
Houston, Tex.	7	11	5	8	5.5
San Antonio, Tex.	7	11	5	8	5.5

	Kerosine *Tank Wagon	Kerosine Retail
Dallas, Tex.	6	10
Ft. Worth, Tex.	7	11
Houston, Tex.	8	11
San Antonio, Tex.	7	11

74 Oct. Aviation Gasoline, Clear	Tank Car
FOB Baytown, Tex.	8.5

*To all classes of dealers & consumers.
†Less 1c discount to dealers only.

The Texas Co.

	Gasoline—Dealer Fire-Chief (*Regular*)	T.W. Indian (*3rd Grade*)	Gasoline Taxes
Dallas, Tex.	*6	5	5.5
Ft. Worth, Tex.	6	5	5.5
Wichita Falls, Tex.	7	5	5.5
Amarillo, Tex.	7	5	5.5
Tyler, Tex.	7	5	5.5
El Paso, Tex.	9	8	5.5
San Angelo, Tex.	7	5	5.5
Waco, Tex.	6.5	4.5	5.5
Austin, Tex.	7	5	5.5
Houston, Tex.	7	5	5.5
San Antonio, Tex.	7	5	5.5
Port Arthur, Tex.	7	5	5.5

*Less 1c temporary allowance to all dealers.

Continental Oil

	Conoco Bronz-z-z (*Regular*) †Tank Wagon	Demand (*3rd Grade*)	Gasoline Taxes	Kerosine T.W.
Denver, Col.	9	8	5.5	10.5
Grand Junction, Col.	11	10	5.5	12
Pueblo, Col.	10	8	5.5	9
Casper, Wyo.	11	10	5.5	11.5
Cheyenne, Wyo.	7.5	6.5	5.5	11
Billings, Mont.	10	9	6.5	12
Butte, Mont.	9	8	6.5	13
Great Falls, Mont.	9	8	6.5	12
Helena, Mont.	9	8	6.5	12.5
Salt Lake City, Utah	10.5	9.5	5.5	14
Boise, Ida.	12.1	11.1	6.5	16
Twin Falls, Ida.	13.1	12.1	6.5	16.5
Albuquerque, N. M.	9	8	*7	9.5
Roswell, N. M.	7	6	*7	8
Santa Fe, N. M.	9.5	8.5	*7.5	9.5
Ft. Smith, Ark.	8	5.75	*5.5	6.5
Little Rock, Ark.	8	5.5	8	8
Texarkana, Ark.	8	6	*5.5	6
Muskogee, Okla.	8	7	5.5	7
Oklahoma City, Okla.	6	5.5	5.5	6.5
Tulsa, Okla.	6	5.5	5.5	6

*Taxes: In gasoline tax column are included these city taxes—Albuquerque, & Roswell, 0.5c; Santa Fe, 1c. Texas 4c state tax applies within city limits of Texarkana, Ark.; Okla. 4c state tax applies within city limits of Ft. Smith, Ark.

†To consumers and dealers, except at Cheyenne where consumer t.w. prices are 2.5c above dealer t.w. prices shown above, and Oklahoma City where consumer t.w. prices are 1c and 0.5c above Bronz-z-z and Demand dealer t.w. prices, respectively, shown above.

S. O. California

Standard Gasoline (*Regular Grade*)
Flight Gasoline (*Third Grade*)

	Standard Tank Truck	Standard Retail	Flight Tank Truck	Flight Retail	Gasoline Taxes
San Francisco, Cal.	12	13	10	11	4.5
Los Angeles, Cal.	11.5	12.5	9.5	10.5	4.5
Fresno, Cal.	13	14	11	12	4.5
Phoenix, Ariz.	14	15	11	12	6.5
Reno, Nev.	14	15	12	13	5.5
Portland, Ore.	12.5	13.5	10.5	11.5	6.5
Seattle, Wash.	12.5	13.5	10.5	11.5	6.5
Spokane, Wash.	14	15	12	13	6.5
Tacoma, Wash.	12.5	13.5	10.5	11.5	6.5

	Stanavo Tank Truck	Aviation Gasoline Taxes	Kerosine Tank Truck
San Francisco, Cal.	15.5	4.5	11.5
Los Angeles, Cal.	15	4.5	10
Fresno, Cal.	16.5	4.5	12.5
Phoenix, Ariz.	17.5	6.5	*12.5
Reno, Nev.	17.5	5.5	13.5
Portland, Ore.	16	6.5	13.5
Seattle, Wash.	16	6.5	13.5
Spokane, Wash.	19	6.5	16.5
Tacoma, Wash.	16	6.5	13.5

*Taxes: Phoenix kerosine price is ex 5c state tax.

Discounts:

To Resale & Commercial Consumers—3c off posted tank truck tax included price on Standard & Stanavo Aviation, 2c off on Flight. Deliveries less than 40 gals. to commercial consumer trade, 1c a gal. above posted tank truck tax included price, except single deliveries to Marine trade only which are billed at posted tank truck tax included price less 3c for Standard & Stanavo Aviation, and less 2c for Flight.

Kerosine—Tank car and truck & trailer deliveries, 3c off posted tank truck price; plant stem deliveries to jobbers, 2.5c off posted tank truck price.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline (*Regular Grade*)

	Gasoline T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont.	16.5	8	17
Toronto, Ont.	16.5	8	17
Brandon, Man.	21	7	23
Winnipeg, Man.	20.5	7	22.5
Regina, Sask.	18	7	20
Saskatoon, Sask.	20.8	7	22.8
Edmonton, Alta.	18.9	7	20.9
Calgary, Alta.	16	7	18
Vancouver, B. C.	16	7	23
Montreal, Que.	16	8	16.5
St. John, N. B.	14.50	10	18
Halifax, N. S.	14.50	10	18

Discounts: Gasoline—Maritime Provinces—undivided & divided dealers, t.w. price; British Columbia—undivided and divided dealers, 2c off t.w. price; balance of territory—undivided dealers, 1c off t.w. price, divided dealers, t.w. price.

Tank Wagon Price Changes

(These changes have been made in price tables)

S. O. New Jersey—Kerosine:
Following changes Mar. 3—Norfolk cut 1.0c; Petersburgh cut 0.7c and Richmond cut 0.5c. Mt. Airy, Raleigh, Salisbury cut 0.2c March 17.

S. O. New Jersey—Fuel Oil:
Following reductions effective Feb. 28: Baltimore 0.4c for No. 1; Norfolk 0.3c for Nos. 1, 2, and 3; Petersburgh 0.25c for Nos. 1 and 2; Richmond 0.25c for Nos. 1, 2, and 3. Reductions effective Mar. 3; Charlotte, Columbia 0.2c for No. 2; Charleston 0.3c for No. 2. Raleigh No. 1 and 2 cut 0.2c March 17.

Socony-Vacuum—Mobilgas:
Consumer t. c., consumer t. w., and dealer t. w. prices up Mar. 12 in amounts ranging from 0.4c to 2.3c, at following points: Albany, Plattsburgh, Bridgeport, Danbury, Hartford, New Haven, Bangor, Portland, Boston, Concord, Lancaster, Manchester, Providence, Burlington, and Rutland.

Socony-Vacuum—Mineral Spirits and V. M. & P. T. W.:
New York City Mineral spirits and V. M. & P. t. w. up 0.3c Mar. 5.

Socony-Vacuum—Kerosine:
Rochester and Syracuse cut 0.1c for yard and t. w. March 12; Hartford yard cut 0.1c Mar. 1.

Socony-Vacuum—Mobilfuel Diesel:
Albany t. c. cut 0.3c Mar. 12; Buffalo t. c. cut 0.2c Mar. 12.

(*Continued on page* 46)

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (Jan. 27, '41)

Bradford-Allegany $2.30
Southwest Penna. $1.95
Eureka (West Va.) $1.89
Corning, O. (Nov. 4, 1939) $1.12

Posted by Tide Water Assoc. Oil Co. (Jan. 27, '41)

Bradford-Allegany $2.30

Posted by The Pennzoil Co., (Jan. 27, '41)

National Transit $2.23*

Posted by Valvoline Pipe Lines (Jan. 27, 1941)

Bradford (Elk & McKean Counties, Pa.) $2.30
Warren, Forest, Venango, Clarion & Butler Counties, Pa. $2.23
Allegheny, Beaver, Washington & Greene Counties, Pa. $1.95
West Virginia $1.89
South Eastern Ohio $1.85

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $2.18 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (Jan. 2, '41)

Midland, Midland County $1.22
Sherman, Clare-Freeman $1.17

Posted by Simrall Corp. (Jan. 2, '41)

Greendale, Porter, Vernon, Crystal & Wise $1.22
Buckeye, Bentley, Edenville, Beaverton & sweet crude type of Monitor $1.20
Freeman, Redding & Lincoln $1.17
West Branch-Arenac $1.02
Hamilton-Grout $1.07

Posted by Sohio Corp. (Michigan Division)

Traverse Crude in Allegan, Kent & Ottawa Cos., Bloomingdale & Columbia Twps. in Van Buren Co. (Jan. 16, '41) $1.23
Trenton Crude in Monroe Co. (Jan. 16, '41) $1.17

Posted by Bay Pipe Line Corp. (Jan. 2, '41)

Saginaw & Wise $1.22 — Buckeye & Bentley $1.20
Clare ..... $0.91 — Adams $1.05
Bay Distillate $1.48

ILLINOIS-INDIANA-KENTUCKY-OHIO

Posted by Sohio Corp.

Illinois Basin, including Griffin pool (Aug. 21,'40) $1.15
Carmi, Storms, Ill. area (Feb. 1, '41) 1.10
Birk City, Ky. area (Jan. 1, '41) 1.10
Corydon, Ky. area, Henderson (Jan. 1, '41) 1.10

Posted by Ohio Oil Co.

Illinois Basin (Aug. 21, '40) $1.15
Illinois & Western Indiana (Aug. 23, '40) 1.00

Posted by Carter Oil Co. (Aug. 21, '40)

Louden, Fayette Co. Ill. $1.15

Posted by Mohawk Oil Lines, Inc. (Aug. 21, '40)

So. Illinois heavy ..... $1.05 — Light $1.15

Posted by Ashland Oil & Transp. Co. Somerset oil in Ash. Lines, Ky.: (Aug. 21, '40)

Big Sandy River ..... $1.12 — Kentucky River $1.20

Posted by Owensboro-Ashland Co.

Owensboro, Ky. area (Aug. 21, '40) $1.10

Posted by Standard Oil Co. of Ohio

Lima, O. (Jan. 1, '41) $1.00

MID-CONTINENT

OKLAHOMA-KANSAS-NORTH TEXAS

(See below for companies posting and dates)

Gravity	Schedule No. 1	Schedule No. 2	Schedule No. 3	Schedule No. 4	Schedule No. 5
Below 21	$0.70	$0.60	....	....	$0.63
21-21.9	.72	.63	....	....	.65
22-22.9	.74	.66	....	....	.67
23-23.9	.76	.69	....	....	.69
24-24.9	.78	.72	....	....	.71
25-25.9	.80	.75	....	$0.58	.73
26-26.9	.82	.78	....	.63	.75
27-27.9	.84	.81	....	.68	.77
28-28.9	.86	.84	$0.86	.73	.79
29-29.9	.88	.87	.88	.78	.81
30-30.9	.90	.90	.90	.82	.83
31-31.9	.92	.92	.92	.86	.85
32-32.9	.94	.94	.94	.90	.87
33-33.9	.96	.96	.96	.96	.89
34-34.9	.98	.98	.98	.98	.91
35-35.9	1.00	1.00	1.00	1.00	.93
36-36.9	1.02	1.02	1.02	1.02	.95
37-37.9	1.04	1.04	1.04	1.04	.97
38-38.9	1.06	1.06	1.06	1.06	.99
39-39.9	1.08	1.08	1.08	1.08	1.01
40 & above	1.10	1.10	1.10	1.10	1.03

Above schedules posted by:

No. 1: S. O. Indiana Oct. 17, '38 in Okla. & Kans.
No. 2: Carter Oct. 13, '38 in Okla.; Magnolia Oct. 12, '38 in Okla.; Shell Oct. 22, '38 in Okla. & Kans.
No. 3: Continental Oct. 11, '38 in Okla. & Kans. with lowest grade Below 29; Texas Co. Oct. 12, '38 in Okla. & Kans.
No. 4: Sinclair-Prairie Aug. 31, '39 in Okla. & Kans.
No. 5: Stanolind Sept. 1, '40 in N. Texas; Continental Oct. 11, '38 in N. Texas; Texas Co. Oct. 12, '38 in N. & N. Central Texas; Magnolia Dec. 3, '38 in N. & N. Central Texas; Sinclair-Prairie July 16, '40 in Mexia & N. Central Texas. Texas Co.'s lowest grade is 28-28.9 at $0.79; Continental, Magnolia and Sinclair-Prairie postings begin with Below 29 at $0.79.

TEXAS & NEW MEXICO FIELDS

Posted by Humble Oil & Refining Co. (Oct. 2, '39)

Gravity	West Central Texas	East Central Texas	Gray County	Carson & Hutchinson Counties	Tomball, Etc.	West Texas & New Mexico	Texas Gulf Coast & Mirando	Anahuac-Dickinson	Refugio
Below 20	....	....	....	....	....	$0.53	$0.86	$0.81	$0.91
20-20.9	....	....	....	....	....	.55	.88	.83	.93
21-21.9	....	....	....	....	....	.57	.90	.85	.95
22-22.9	....	....	....	....	$0.95	.59	.92	.87	.97
23-23.9	....	$0.78	....	....	.97	.61	.94	.89	.99
24-24.9	$0.71	.80	....	....	.99	.63	.96	.91	1.01
25-25.9	.73	.82	....	....	1.01	.65	.98	.93	1.03
26-26.9	.75	.84	....	....	1.03	.67	1.00	.95	1.05
27-27.9	.77	.86	....	....	1.05	.69	1.02	.97	1.07
28-28.9	.79	.88	$0.72	$0.67	1.07	.71	1.04	.99	1.09
29-29.9	.81	.90	.74	.69	1.09	.73	1.06	1.01	1.11
30-30.9	.83	.92	.76	.71	1.11	.75	1.08	1.03	1.13
31-31.9	.85	.94	.78	.73	1.13	.77	1.10	1.05	1.15
32-32.9	.87	.96	.80	.75	1.15	.79	1.12	1.07	1.17
33-33.9	.89	.98	.82	.77	1.17	.81	1.14	1.09	1.19
34-34.9	.91	1.00	.84	.79	1.19	.83	1.16	1.11	1.21
35-35.9	.93	1.02	.86	.81	1.21	.85	1.18	1.13	1.23
36-36.9	.95	1.04	.88	.83	1.23	.87	1.20	1.15	1.25
37-37.9	.97	1.06	.90	.85	1.25	.89	1.22	1.17	1.27
38-38.9	.99	1.08	.92	.87	1.27	.91	1.24	1.19	1.29
39-39.9	1.01	1.10	.94	.89	1.29	.93	1.26	1.21	1.31
40 & above	1.03	1.12	.96	.91	1.31	.95	1.28	1.23	1.33

W. Central Tex. includes crudes purchased in Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell Jones, Shackelford, Stephens, Throckmorton & Young Cos., Tex.

E. Central Tex. includes crudes purchased in Anderson, Cherokee, Limestone & Navarro Cos., Tex.

W. Tex. & N. Mex. includes crudes purchased in Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler & Yoakum Cos., Tex. & Lea Co., N. Mex.

Tex. Gulf Coast includes crudes purchased in Goose Creek, Sugarland, Thompsons, Mykawa, Amelia, Webster & Clear Lake fields.

Anahuac-Dickinson includes crudes purchased in Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Pierce Junction & Raccoon Bend (Shallow Sand) fields.

Refugio includes crudes purchased in Saxet, East White Point, Greta, O'Connor-McFadden, Taft, Plymouth & Tom O'Connor fields.

Mirando includes crudes purchased in Duval, Jim Hogg, Webb & Zapata Cos., Tex. & in Heyser & Placedo fields.

Postings for Raccoon Bend (Deep Sand) & Satsuma crudes are same as for Tomball.

East Texas $1.10
Van ..... .93
Pecos ..... .78
Talco $0.65
Conroe 1.27
Hardin 1.10
Flour Bluff & Jim Wells Cos. $1.23
Salt Flat, Darst Creek, Hilbig, Carroll, Clark & Zoboroski ..... .96

MAGNOLIA PETROLEUM CO.

Gray, Carson & Hutchinson Cos., Tex.—Dec. 3, '38—same as Humble.

Tomball, Tex.—Dec. 3, '38—same as Humble.

West Texas—Oct. 12, '38, in Crane, Glasscock, Howard, Mitchell, Upton & Winkler Cos. and Dec. 6, '40 in Cochran, Hockley, Yoakum & Gaines Cos.—same as Humble except Magnolia begins with Below 25 at $0.63.

N. Mexico—Oct. 15, '39, in Lea Co.—same as Humble except Magnolia begins with Below 25 at $0.63 and ends with 36 & above at $0.87.

Mirando, Tex.—Oct. 2, '39—same as Humble.

Beaumont, Tex.—Oct. 2, '39—same as Humble Texas Gulf Coast.

Cass & Panola Cos., Tex.—Oct. 12, '38—Below 25 grav. oil at $0.73, plus 2c per degree of gravity to top of 40 & above at $1.05.

Following Tex. postings Oct. 12, '38, except Talco Feb. 28, '41:

East Texas $1.10
Darst Creek ..... .96
Luling ..... .87
Lytton Springs ..... .99
Cleveland (Liberty Co.) $1.14
Hardin (Liberty Co.) 1.02
Talco 0.65

SINCLAIR-PRAIRIE OIL MARKETING CO.

Gray, Carson & Hutchinson Cos., Tex.—Aug. 31, '39—same as Humble.

West Texas & Lea Co., N. Mex.—Aug. 31, '39—same as Humble, except Sinclair begins with Below 25 at $0.63 and ends with 36 & above at $0.87.

Texas Gulf Coast—Oct. 3, '39—same as Humble.

East Texas (Oct. 2, '39) $1.10
Eddy Co., N. Mex. (Aug. 31, '39) ..... .77
Long Lake, in Anderson, Leon & Freestone Cos., Tex. (Jan. 20, '40) $1.08

STANOLIND OIL PURCHASING CO.

Tomball & Satsuma, Tex.—March 1, '41—same as Humble except Stanolind begins with Below 23 at $0.95.

Clinton, Tex.—Oct. 3, '39—same as Humble Texas Gulf Coast except Stanolind begins with Below 21 at $0.88.

Fairbanks, N. Houston & Rosslyn, Tex.—March 1, '41—same as Humble Anahuac-Dickinson schedule.

STANOLIND OIL & GAS CO.

West Beaumont, Jefferson Co., Tex.—Oct. 2, '39—same as Humble Texas Gulf Coast.

THE TEXAS CO.

(Effective Oct. 2, '39)

Panhandle, Tex.—Sweet crude same as Humble's Gray Co. except Texaco begins with 34-34.9 at $0.84. Sour crude same as Humble's Carson & Hutchinson Cos. except Texaco begins with 34-34.9 at $0.79.

West Texas & Lea Co., N. Mex.—Same as Humble except Texaco begins with Below 26 at $0.65 and ends with 36 & above at $0.87.

Texas Gulf Coast—Same as Humble except Texaco ends with 34 & above at $1.16.

Mirando-Duval, Tex.—Same as Humble except Texaco ends with 28 & above at $1.04.

Refugio, Tex.—Same as Humble except Texaco ends with 28 & above at $1.09.

Following Tex. postings Oct. 2, '39,—except Hockley & Cochran Cos. March 1, '41.

East Texas $1.10
Darst Creek ..... .96
Hockley & Cochran Cos. ..... .70
Cass Co. $1.05
Conroe 1.27

SHELL OIL CO., INC.

West Texas & Lea Co., N. Mex.—Aug. 29, '39, & Yoakum Co., Tex. Sept. 1, '39—same as Humble except Shell ends with 36 & above at $0.87.

Fisher Co., Tex.—Aug. 29, '39—Below 25 grav. at $0.68, plus 2c per degree of gravity up to 40 & above at $1.00.

Following Tex. postings Oct. 5, '39:
East Texas $1.10
Livingston area, Polk Co. 1.10

Following Tex. postings Aug. 29, '39:
Pecos Co., except Yates Shallow pool $0.78
Pecos Co., Yates Shallow pool ..... .65

CONTINENTAL OIL CO.

Eddy Co., N. Mex.—Apr. 22, '40—Begins with Below 29 at $0.61, plus 2c per degree gravity up to 40 & above at $0.85.

Mirando, Tex.—Feb. 1, '41—same as Humble, except Continental begins with Below 21 at $0.88.

Alfred & Magnolia City, Tex. (Jim Wells Co.)—Jan. 1, '41—$1.08.

PAN AMERICAN PIPE LINE CO.

Hastings & So. Houston, Tex. crudes—Oct. 1, '40—same as Humble Texas Gulf Coast except Pan Am. begins with Below 21 at $0.88.

Cayuga, Anderson Co., Tex.—Oct. 2, '39—$0.78.

East Texas—Jan. 1, '41—$1.10.

CRUDE OIL PRICES *(Continued from preceding page)*

CALIFORNIA *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 1, 1940

Gravity	Signal Hill (Long Beach) and others*	Seal Beach	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley Canal	Coles Levee Richfield Western	Mountain View and others**	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria Val. (Union Oil, Sept. 1 '39)
14-14.9	$0.65	$0.61	$0.63	$0.64	$0.65	$0.61	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	....	....	$0.60	$0.60	$0.60	$0.60	....	$0.42
15-15.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.44
16-16.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.45
17-17.9	.65	.64	.63	.68	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.46
18-18.9	.65	.64	.63	.71	.65	.65	....	.68	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	....
19-19.9	.69	.64	.67	.75	.70	.69	....	.72	.61	.65	.62	.63	....	....	....	.60	.64	.64	.61	$0.60	....
20-20.9	.73	.64	.72	.79	.76	.74	....	.75	.65	.69	.62	.67	....	....	....	.60	.69	.69	.62	.60	....
21-21.9	.78	.64	.76	.82	.81	.78	....	.79	.69	.73	.62	.72	$0.63	....	....	.64	.74	.74	.66	.60	....
22-22.9	.82	.69	.81	.86	.86	.82	....	.82	.73	.77	.66	.76	.63	....	....	.68	.79	.78	.70	.63	....
23-23.9	.86	.75	.85	.89	.92	.86	$0.71	.86	.78	.82	.71	.81	.67	....	....	.71	.84	.82	.74	.67	....
24-24.9	.90	.80	.90	.93	.97	.90	.77	.89	.82	.86	.75	.85	.72	....	....	.75	.89	.86	.78	.71	....
25-25.9	.95	.86	.94	.96	1.02	.95	.82	.93	.86	.90	.80	.89	.77	....	....	.79	.94	.90	.82	.75	....
26-26.9	.99	.91	.99	1.00	1.08	.99	.88	.96	.90	.94	.84	.94	.82	....	....	.83	.99	.95	....	....	....
27-27.9	1.03	.97	1.03	1.04	....	1.03	.94	1.00	.94	.98	.89	.98	.87	$0.83	$0.92	.87	1.04	.99	....	....	....
28-28.9	1.07	1.02	1.07	1.07	....	1.07	.99	1.03	.98	....	.93	1.02	.91	.86	.96	.91	1.09	1.03	....	....	....
29-29.9	1.10	1.07	1.11	1.10	....	1.10	1.04	1.06	1.02	....	.98	1.06	.96	.90	.99	.95	1.14	1.07	....	....	....
30-30.9	1.14	1.12	1.15	1.14	....	1.14	1.09	1.09	Elwood Terrace		1.02	1.10	1.01	.94	1.02	.99	1.19	1.11	....	....	....
31-31.9				1.17		1.17	1.14	Elwood Terrace			1.07	1.14	1.05	.98	1.06	1.02	1.24				....
32-32.9				1.20	Pipeline	1.20	1.19	F. O. B. ship.			1.11	1.18	1.09	1.02	1.09	1.06	1.29	Kettleman Hills			....
33-33.9						....	1.24	....	$1.21	....	1.15	1.22	1.14	1.06	1.13	1.10	1.34	....	$1.12	....	....
34-34.9						....	1.29	....	1.25	....	1.20	1.26	1.19	1.10	1.16	1.14	....	....	1.17	....	....
35-35.9						....	1.34	....	1.29	....	1.24	....	1.23	1.14	1.20	....	....	....	1.21	....	....
36-36.9						....	1.39	....	1.33	....	1.28	....	1.27	1.18	1.23	....	....	....	1.25	....	....
37-37.9						....	1.44	....	1.37	....	1.33	....	1.31	1.22	1.26	....	....	....	1.29	....	....
38-38.9						....	1.49	....	....	....	1.37	....	1.36	1.25	1.30	....	....	....	1.33	....	....
39-39.9						....	1.54	....	....	....	1.42	....	....	1.29	1.34	....	....	....	1.38	....	....
40-40.9						....	1.59	....	....	....	1.46	....	....	1.33	1.37	....	....	....	....	....	....
41-41.9						....	....	....	....	....	1.50	....	....	1.37	1.40	....	....	....	....	....	....
42-42.9						....	....	....	....	....	1.54	....	....	1.41	1.44	....	....	....	....	....	....
43-43.9						....	....	....	....	....	1.59	....	....	1.45	1.47	....	....	....	....	....	....
44-44.9						....	....	....	....	....	1.63	....	....	1.49	1.51	....	....	....	....	....	....
45-45.9						....	....	....	....	....	1.67	....	....	1.53	1.54	....	....	....	....	....	....
46-46.9						....	....	....	....	....	1.71	....	....	1.57	1.57	....	....	....	....	....	....
47-47.9						....	....	....	....	....	....	....	....	1.61	....	....	....	....	....	....	....
48-48.9						....	....	....	....	....	....	....	....	1.64	....	....	....	....	....	....	....

FOB Standard Pipeline

*El Segundo prices same as Signal Hill. Wilmington prices same as Signal Hill, except below 19 gravity prices are: 14-16.9, $0.60; 17-17.9, $0.62; 18-18.9, $0.64.
**Includes Newhall, McKittrick, Kern River, Round Mountain and Kern Front, schedule for which ends with 19-19.9. Mountain View schedule begins with 19-19.9.

LOUISIANA-ARKANSAS

Posted by S. O. Louisiana, Oct. 17, '40

Gravity	Bunkie, La. etc.	Caddo, La. etc.	Darrow, La. etc.	University, La. (Baton Rouge)	Atlanta, Ark. etc.
Below 21	....	....	$0.75	$0.91	$0.55
21-21.9	....	....	.77	.93	.57
22-22.9	....	....	.79	.95	.59
23-23.9	....	....	.81	.97	.61
24-24.9	....	....	.83	.99	.63
Below 25	$0.83	$0.73	....	....	....
25-25.9	.85	.75	.85	1.01	.65
26-26.9	.87	.77	.87	1.03	.67
27-27.9	.89	.79	.89	1.05	.69
28-28.9	.91	.81	.91	1.07	.71
29-29.9	.93	.83	.93	1.09	.73
30-30.9	.95	.85	.95	1.11	.75
31-31.9	.97	.87	.97	1.13	.77
32-32.9	.99	.89	.99	1.15	.79
33-33.9	1.01	.91	1.01	1.17	.81
34-34.9	1.03	.93	1.03	1.19	.83
35-35.9	1.04	.94	1.04	1.20	.84
36-36.9	1.05	.95	1.05	1.21	.85
37-37.9	1.06	.96	1.06	1.22	.86
38-38.9	1.07	.97	1.07	1.23	.87
39-39.9	1.08	.98	1.08	1.24	.88
40 & above	1.09	.99	1.09	1.25	.89

Bunkie, La. schedule includes Eola and Olla, La.

Caddo, La. schedule includes De Soto, Homer, Sabine & Sugar Creek, La., Fouke & Miller County, Ark.

Darrow, La. schedule includes, Bayou des Glaise, Bayou, Mallet, Choctaw, Jeanerette, Lirette, No. Crowley, Port Barre, Potash, Roanoke & St. Martinville, La.

Atlanta, Ark. schedule includes Buckner, Magnolia, Village & Schuler (Jones Sand Oil), Ark.

Cotton Valley:
Crude $1.05
Distillate 1.10
Holloway Sand
Crude 1.10
Rodessa $1.05
Shreveport (Cross Lake) 1.05
Smackover (Heavy) .73
Dorcheat, Big Creek, & McKamie (Sour Distillates) ..... .95

(Continued in next column)

LOUISIANA-ARKANSAS (Cont'd)

Posted by Shell Oil Co., Inc. (Aug. 29, '39)
Iowa District, La.

Below 18	$0.75	23-23.9	$0.89	29-29.9	$1.04
18-18.9	.77	24-24.9	.92	30-30.9	1.06
19-19.9	.79	25-25.9	.95	31-31.9	1.08
20-20.9	.81	26-26.9	.98	32-32.9	1.10
21-21.9	.83	27-27.9	1.00	33-33.9	1.12
22-22.9	.86	28-28.9	1.02	34 & above	1.14

Black Bayou & White Castle Districts, La.—same as Iowa District, except Black Bayou, etc. begins with Below 20 at $0.79.

Gibson Field, Terrebonne Parish, La. $1.04
Happytown Field, St. Martin, Parish, La.
(Jan. 12, '40) 1.00

Posted by Arkansas Fuel Oil Corp.

Urania, La. (Jan. 3, '41) $0.95

Posted by Continental Oil Co.

Tepetate & Ville Platte, La. (Oct. 11, '38) $1.03

Abbeville, La. (Jan. 1, '39)

Below 36	$0.92	37-37.9	$0.96	39-39.9	$1.00
36-36.9	.94	38-38.9	.98	40 & above	1.02

CANADIAN FIELDS

Posted by Imperial Oil Limited
Western Ontario (Nov. 6, 1939)

Petrolia ..... $2.10 Oil Springs $2.17

Turner Valley Crude Oil (Sept. 12, '40)
(Prices FOB producer's tankage)

33-33.9	$1.08	44-44.9	$1.30	55-55.9	$1.52
34-34.9	1.10	45-45.9	1.32	56-56.9	1.54
35-35.9	1.12	46-46.9	1.34	57-57.9	1.56
36-36.9	1.14	47-47.9	1.36	58-58.9	1.58
37-37.9	1.16	48-48.9	1.38	59-59.9	1.60
38-38.9	1.18	49-49.9	1.40	60-60.9	1.62
39-39.9	1.20	50-50.9	1.42	61-61.9	1.64
40-40.9	1.22	51-51.9	1.44	62-62.9	1.66
41-41.9	1.24	52-52.9	1.46	63-63.9	1.68
42-42.9	1.26	53-53.9	1.48	64 & over	1.70
43-43.9	1.28	54-54.9	1.50		

Absorption Gasoline (Jan. 5, 1938)

90% Rec., 20 lb. Reid v.p. $1.94
90% Rec. 17 lb. Reid v.p. $2.08

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co. (Oct. 11, '38, except Tensleep crude Feb. 1, '41)

Salt Creek (except Tensleep crude), Midway & Dutton Creek, Wyo.

Below 29	$0.86	32-32.9	$0.94	36-36.9	$1.02
29-29.9	.88	33-33.9	.96	37-37.9	1.04
30-30.9	.90	34-34.9	.98	38-38.9	1.06
31-31.9	.92	35-35.9	1.00	39-39.9	1.08
				40 & above	1.10

Wyoming:

Tensleep Crude	$0.6515	Grass Creek Light	$0.90
Frannie Light	.55	Grass Creek Heavy	.40
Frannie Heavy	.42	Elk Basin	.90
Hamilton Dome	.35	Iles, Colo.	.92

Posted by S. O. Indiana (June 5, '39)

Lance Creek, Wyo. $0.77

Posted by Ohio Oil Co. (Oct. 11, '38)

Elk Basin, Wyo. $0.90
Grass Creek, Wyo. Light ..... .90
Rock Creek, Wyo. 1.00
Lance Creek, Wyo. ..... .77
Dry Creek, Mont. ..... .92
Sunburst, Mont. (Nov. 16, '37) ..... .90

Posted by Continental Oil Co. (Oct. 11, '38)
Ft. Collins & Wellington, Col.

Below 29	$0.81	32-32.9	$0.89	36-36.9	$0.97
29-29.9	.83	33-33.9	.91	37-37.9	.99
30-30.9	.85	34-34.9	.93	38-38.9	1.01
31-31.9	.87	35-35.9	.95	39-39.9	1.03
				40 & above	1.05

Canon City & Florence, Col $0.90
Cat Creek, Mont. .. 1.10
Big Muddy, Wyo. .. $0.98
Lance Creek, Wyo. 0.77

Tank Wagon Price Changes

(Continued from page 44)

Socony-Vacuum—Mobilheat:
Richmond t. w. cut 0.1c; Binghamton, Buffalo and Syracuse yard and t. w. cut 0.2c Mar. 12. Rochester yard and t. w. cut 0.3c Mar. 12.

S. O. Kentucky—Standard Gasoline:
Jackson up 1.0c Mar. 11.

S. O. Louisiana—Esso:
Bristol Dealer t. w. cut 0.5c March 14.

Continental Oil—Bronz-z-z and Demand:
Cheyenne t. w. up 1.0c Mar. 13; Tulsa t. w. Bronz-z-z cut 1.0c, Demand 0.5c Feb. 27.

Canada; Imperial Oil Ltd.—3 Star Imperial:
Saskatoon cut 0.2c Mar. 11.

Canada; Imerial Oil Ltd.—Kerosine:
Saskatoon cut 0.2c Mar. 11.

CLASSIFIED

Address all Blind Box Number ads to National Petroleum News, 530 Penton Building, Cleveland, Ohio, unless otherwise specified.

Positions Wanted

Technical post graduate, age 42, 17 years oil experience practically all phases. 12 years refining major oil company holding major executive positions. Presently employed executive small company. Desire change preferably Gulf Coast. Box No. 863.

Fifteen years with large major marketer—Desire independent or jobber connection. Qualifications—Manager ten million gallon territory. Sales promotion—Jobber and dealer development. Unbranded tank car sales—Truck train delivery. Oil and lubricant sales. Age forty. Have large Michigan clientele. Box No. 870.

Sales and Sales Executive. Available April 1st. Age 42, with 20 years experience in oil industry. Experienced in bulk plant and station management. Capable of opening office and developing business in new territory for refinery or reliable concern. Acquainted with jobbers in Middle-West, South, and South-West. Box No. 869.

Wanted To Buy

One 2000 to 2500 gallon semi-gasoline tank trailer. Must be in good condition.
Address—Black River Oil Co. Inc., Carthage, N. Y.

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Garage, Residence, Automobile Dealership selling established line of cars, past thirty years. Located on National Highway 125 miles from Washington, D. C. Employing seven mechanics, stockroom clerk, four station attendants. Reason for selling, Owner's health. Box No. 868.

On account of my Son being called to colors would like to sell either The Middletown Grain Co., or The Fall Creek Oil Co. Box No. 864.

FOR SALE

ESTABLISHED gas and oil business, owning stations in Illinois and Missouri. Large gallonage. Reason for selling: active partner drafted and senior partner unable carry on account ill health.

Address all inquiries to

Box No. 867

For Sale or Lease

Wholesale gasoline bulk plant and outlets, well established business doing 100,000 gallons per month. Now handling Government Contracts. Well located. Modern equipment. Good income. Real opportunity. Reasonable. Address: **P. O. Box 2253, San Antonio, Texas.**

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Wanted, Real Go-getter to operate large service station and wholesale business. No investment except own $300-500 working capital. Pal Oil Co., 500 West Walnut Street, Green Bay, Wis.

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An Exclusive Petroleum Testing Laboratory
Equipped For All Known Tests & Research in Petroleum Products
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Thornton Tandem Co.
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Universal Oil Products Co. 17
U. S. Industrial Chemical Co.

Viking Pump Co. 32

Westinghouse Electric & Mfg. Co.
Wheeling Corrugating Co.
Witte Engine Works

· PERSONALS ·

Frank C. Henderson, is 84 years old but, still feels young enough to actively manage Texas recycling, natural gasoline and carbon black plants. He and some of his friends at Palm Beach, Fla., where he is wintering, celebrated the pioneer natural gasoline manufacturer's birthday recently. One of Oklahoma's first "casinghead" plants was built by Mr. Henderson in the Old Nowata, Okla. field.

* * *

J. W. Liddell

Appointment of **J. W. Liddell,** Chicago, as manager of the newly-created railway sales division of Continental Oil Co. was announced recently by **Harry J. Kennedy,** Ponca City, Conoco's marketing vice-president. Mr. Liddell had been assistant manager in the railway sales and traffic department for 5 years. Divorcement of railway sales from the traffic department resulted in his appointment as manager of the new division, with **P. H. Kuhns** continuing as traffic manager in charge of rail and truck operations. Born in Dallas, Mr. Liddell was associated with the Fort Worth and Denver City Railway, held position of traffic manager for Montrose Oil Refining Co. of Fort Worth and for the Texhoma Oil & Refining Co., which was later merged with the Conoco company.

* * *

Major Edward J. Leary, secretary of the New Jersey Petroleum Industries Committee since 1934, entered active duty with Uncle Sam's forces last month and is now stationed at Fort Bragg, N. C. No musket-toter, he is in one of the Army's few horse-drawn artillery units. Besides his activities in the New Jersey National Guards, and with the Petroleum Industries Committee, "Ed" was secretary of the New Jersey Highway Users Conference.

* * *

Salt and pepper shakers, hundreds of them, are collected by **Paul Barlow,** Louisiana, assistant credit manager in the marketing division of Magnolia Petroleum Co., and his wife. Collection now totals 365, representing 32 states and 2 foreign countries. Mr. Barlow is shown with one-half of the collection.

Paul Barlow amid shakers

* * *

When **Col. Geo. A. Hill** of Houston, president of Houston Oil Co. of Texas, opened the first 1941 session of the Houston Chamber of Commerce's Military Affairs Committee, he used the silver mounted gavel presented him for his leadership of the committee last year. When the gavel fell, the committee continued plans for the protection of industry and life in Harris County, Tex.

Edward J. Leary

Donald Coombs

Irving E. Swensrud, has joined the sales force of W. H. Barber Co., Chicago, having spent the past 5 years with Pure Oil Co. and subsidiaries.

* * *

James F. Nagle, Tulsa, executive assistant of Skelly Oil Co., is rejoining the Skelly marketing department at Kansas City, according to announcement by **C. C. Herndon,** executive vice-president. **Robert F. Pielsticker,** crude oil purchasing agent at Skelly's Wichita, Kans., office, has been appointed executive assistant to succeed Mr. Nagle. The change was scheduled to be effective March 6.

* * *

A combined 100 years of service with the Anderson-Prichard Oil Corp. and affiliate Col-Tex Refining Co. were represented recently when the following executives were presented 20 year service awards: **L. H. Prichard,** president; **J. Steve Anderson** and **P. H. Anderson,** vice-presidents; **C. H. Dresser,** director in charge of industrial sales; and **William Brookover,** pipeline superintendent. All are from Oklahoma City, except Mr. Brookover, who works out of Coltex's Colorado City, Tex. plant.

* * *

Surprise witness before Texas House Committee on elections this past week was Texas Railroad Commissioner **Jerry Sadler,** who supported bill stopping state officials from running for one office while drawing salary from another. Sadler, who ran for governor last year while commissioner, said he "learned his lesson". Committee approved bill.

* * *

After 30 colorful years of work, ranging from axeman for the U. S. Geodetic Survey to manager of operations for Shell Oil Co., Inc., **Donald Gladstone Coombs,** Chicago, won his 20-year service pension from Shell last February. However, Mr. Coombs will not retire from the business world as he is soon to be engaged as a consultant engineer. This oil man is a registered engineer in California, New York and Pennsylvania. While working with Shell, Mr. Coombs traveled throughout Central and South America, as well as Mexico, Canada and Hawaii. His biographical and professional record, as registered with the American Society of Civil Engineers, covers 2 closely-typewritten pages.

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

SABOTAGE

Little publicity has been given to the possibility of sabotage of American industry other than speculation over occasional fires and explosions, which makes it appear that little has occurred. Perhaps this is because industry has planned to prevent sabotage. Some steps have been taken but whether these have prevented sabotage might be difficult to prove. Passage of the Lend-Lease bill may be the signal for intensified effort on the part of saboteurs.

According to E. P. Coffey, chief of the technical laboratory of the Federal Bureau of Investigation, speaking recently in Boston, one surprising fact which the FBI surveys have disclosed is that too many manufacturing plants are "woefully unprotected." He was particularly concerned by the apparent careless handling of irreplaceable models and drawings, lack of fencing on property or too free access through gates.

There is reason to believe that in spite of lack of publicity much attention has been quietly given to prevention of sabotage by the petroleum industry. Sabotage prevention does not make news and to keep the subject spotlighted tends only to arouse unjustified hysteria or to be too suggestive to crack pots or those having personal grudges, if not to amateur saboteurs.

The saboteur's favorite methods are well known however. Protection against him is more a matter of ordinary vigilance, simplified by plant orderliness and preparedness against fire, than being acquainted with the mechanisms of infernal machines or even the methods of disposing of them, once planted. Mr. Coffey pointed out that there is no "correct method" of handling them because they are all different and unpredictable. Suspicious packages should be considered first from the standpoint of protection of human life, he said. Next seek the advice and services of an explosives expert and summon the local fire department. Then consider destroying the bomb by rifle fire using sandbag barricades to lessen the force of an explosion and to guide the direction where damage will be least. Moving the bomb should be the last consideration.

The importance of the problem of the saboteur is readily grasped by employes, it has been found. Their enthusiasm to co-operate has brought forth workable suggestions which management would hesitate to make, as they put the employes to inconvenience in order to work out their own suggestions.

Perhaps no industry has been more active than the petroleum industry in training employes for fire prevention and fire fighting. Such preparedness is considered by Coffey as the best possible first line of defense. However, he concluded that any program designed to combat fire sabotage, no matter how perfect, will fail unless it is checked and inspected at frequent intervals until the national defense emergency is past.

ALCOHOL FROM HYDROCARBONS

An interesting sidelight on alcohol-gasoline, now pretty well discredited but tending to crop up at slight provocation, is the fact that alcohol is now being made commercially from coal and natural gas and is giving molasses, one of the cheapest of raw materials and cheaper than any farm product, a setback. The experience of a molasses importer and marketer who was forced to find a new market for molasses because "a pressure process of distilling alcohol from coal and natural gas" has become of commercial importance was told by Upton Close in Future Magazine and condensed in Readers Digest recently. One pressure plant alone has eliminated a market for 23,000,000 gallons of molasses, it was explained.

The author is apparently unaware of this development having any significance to power alcohol and tells only of the success of A. I. Kaplan, Southwestern Sugar & Molasses Co., in making molasses an important feed for range cattle in Texas.

★ ★ ★

GASOLINE SUBSTITUTE

Description of the coal-gas-driven automobile with its huge canvas bag installed on the roof, as described by Ernie Pyle, roving columnist of Scripps-Howard syndicate, gives as intimate an account of the inconvenience of this flopping bag as a school-girl might describe her first "party formal". His comment on first seeing such cars in Cardiff, Wales, recently, was "it looks like about 5 layers of feather-bed up there and you look silly as hell driving down street with this balloon."

We begin to feel more and more thankful for our plentiful supply of motor fuel when he admits that coal-gas is all right as a makeshift but not too satisfactory. An equipment cost of $120 hits us pretty hard and no doubt has much to do with its limited use in Great Britain, to say nothing of the reduction of power from that obtainable from gasoline. The terrific wind resistance of such a bag and the flopping of the half-empty bag in the wind impressed Pyle. Heavy snow or rain weights down the bag also and forces gas into the carburetor too fast, making the engine choke and backfire, he tells from first-hand reports of users.

An interesting and more detailed account of the many gasoline substitutes used in Europe has been given by Gustav Egloff, the most recent being in the American Chemical Society's News Edition, Dec. 10, 1940, p. 1069.

Clad Steels Find Place In

This combination evaporator and bubble tower, fabricated of clad steel produced by Allegheny Ludlum Steel Co., is 101 feet long, 12 feet I.D., with shell 1 inch thick. It was designed for operating at 100 psi. and 420-830°F.

ABSTRACT

Oil refinery engineers have been trying out three general types of protective linings for fractionating towers and other pressure reaction vessels where corrosion is a problem. The attractiveness of corrosion-resisting linings of high-alloy sheets welded to the walls of ordinary carbon steel vessels, in preference to vessels fabricated of solid corrosion-resisting alloy steels and to the frequent replacement of unlined vessels of ordinary carbon steel, has stimulated development of "clad" steels for the fabrication of pressure vessels for the petroleum and chemical industries. Several methods have been developed and are described here. The third type of lining is that produced by spraying the desired metal on the walls of the vessel. Its principal application appears to be in maintenance, but successful applications of linings have been reported. Advances have been rapid during the past three years in "cladding" and "metallizing".

THE oil industry has become familiar with three general methods of lining pressure vessels to reduce corrosion during the past decade. These are installation of sheet metal linings by welding, use of metal spray, and use of "clad" metals for fabrication of pressure vessels. All of these methods have been used with a varying and increasing degree of satisfaction in refinery pressure vessels depending upon the quality of the job of application and the quality of the metals applied.

Advances in the technique of applying these methods have been rapid in the past 3 years so that unsatisfactory applications have not prevented new trials based on correction of past faults. The methods have wider application than in pertoleum refineries and as a consequence many have contributed to the development of metal coatings. The field has been of considerable interest to manufacturers of steel plate and competitive methods of making "composite" or "clad" metals have been developed.

The lack of newness to the idea of protective coatings makes it surprising to a layman that this development for corrosion resistance and for service too severe for ordinary steel, waited until comparatively recently for adaptation in petroleum refining and the chemical industry. Tin plating and galvanizing have been successful for many years, as well as electroplating of many other metals. Metal coatings, of ccurse, are not the only materials employed for this purpose. Gunite, glass, and enamels have all found a place in metal protection, to say nothing of paints.

The technique of installing chromium and stainless steel sheet linings in pressure vessels in the field was described at a recent meeting of American Petroleum Institute by J. T. Shaler[1], and at the last Oil World Exposition by K. E. Luger[2]. At the same meeting of the A. P. I., D. R. Johnson and E. K. Dewey, Jr., described the successful use of metal-spraying[3] for the protection of refinery vessels of Continental Oil Co. and T. M. Jasper described the multi-layer wall construction of pressure vessels[3] developed by the A. O. Smith Corp. for certain applications.

While "clad" or "composite" metals were introduced on a commercial basis about 10 years ago there was considerable difficulty in effecting a strong union between the metals in the early days. Development during the past 5 years, however, has made it rare now to encounter difficulty with commercial products, according to T. S. Fitch[4], manager of the Composite Steel Division of Jessop Steel Co. This type of material is, of course, a product of steel mill fabrication. It is defined by M. A. Scheil, A. O. Smith Corp., as a mild steel base which furnishes strength to meet design requirements, effectively clad with moderate thickness of corrosion resisting metal. Stainless steel alloys, commercially pure non-ferrous metals, and non-ferrous alloys are used as claddings. This definition is probably wide enough for such material as used

[1] National Petroleum News, May 17, 1939, p. R-211.
[2] National Petroleum News, May 17, 1939, p. R-221.
[3] National Petroleum News, May 17, 1939, p. R-216.

ce In Refinery Equipment

in the refinery but he also indicates that steel-backed bearing shells come into this same general classification; the steel for strength and stiffness, the babbitt, bronze or other lining for anti-friction properties. The definition might be extended still further to include wear resistance such as is required in tool steels and valve seats, for example.

Cladding Methods Classified

As mentioned above, a number of methods have been developed for producing composite metals. This fact alone is significant to the practicability of manufacture and to the suitability of the material for its intended purpose. One of the fabrication methods was developed by a company primarily engaged in developing refining processes and constructing refineries. Four general methods were summarized recently by Mr. Scheil[1] as "casting on" processes, pressure welding, fusion welding, and electric resistance welding. Under these 4 heads he gave the distinguishing characteristics of 12 processes that have been developed. These 12 did not pretend to cover the entire field but were believed to include the important variations of composite steel. At least half of the 12 methods have been used with stainless steel or other corrosion resisting metals suitable for refinery pressure vessel fabrication.

Under the head of "casting on" is a process developed by Ingersoll Steel and Disc Division of Borg-Warner Corp. in which a stainless clad steel is made by casting mild steel around an assembly of stainless steel plates separated by an insulating material and edge-welded. The assembly is rolled and separated. The "casting on" method is used in making tool steel and bearings also.

A process of pressure welding in which the bond between stainless alloys and mild steel is obtained by rolling together a stainless alloy plate electroplated with pure iron on the side in contact with the steel plate is employed by Jessop Steel Co.

The Plykrome Corp. produces a pressure welded bond between stainless alloys and mild steel by inserting an ingot iron sheet between the alloy and steel and rolling the assembly to gage. Lukens Steel Co. rolls non-ferrous metals and alloys on steel backing at high temperature.

Under the fusion welding method is a process developed by R. K. Hopkins of the M. W. Kellogg Co. and manufactured by Allegheny Ludlum Steel Corp. which has been given wide publicity. This is the Pluramelt process which is a combination fusion and casting process employing a soft steel slab as one side of a narrow mold. An ingot of desired composition, bonded to the slab, is built up in the mold. An automatic welding head which makes a traverse in the mold supplies the metallic forming material. The composite slab thus formed is then rolled to gage.

The Kellogg company had earlier developed the Kelk-alloy process, also under the head of fusion welding. This process is used for Stelliting and hard surfacing and for lead linings in steel drums. Overlapping heads of weld metal are deposited on the surface of a steel slab by oxy-

[1] Metal Progress, Oct., 1940.

Hot-spun head and shell of a refinery coke chamber fabricated from chromium alloy clad steel. External connections are said to be readily formed of this material and welded to vessels or heads in such way as to preserve continuity of the alloy lining. Courtesy Babcock & Wilcox Co.

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March 19, 1941

"Clad" steels open new possibilities in the fabrication of refinery pressure vessels, giving protection against corrosion at less cost than solid steel alloy plates and conserving the supply of non-ferrous metals now difficult to obtain. "Clad" steels, "metallizing" processes, and sheet metal linings are available for corrosion protection in oil refining and chemical industry R-82

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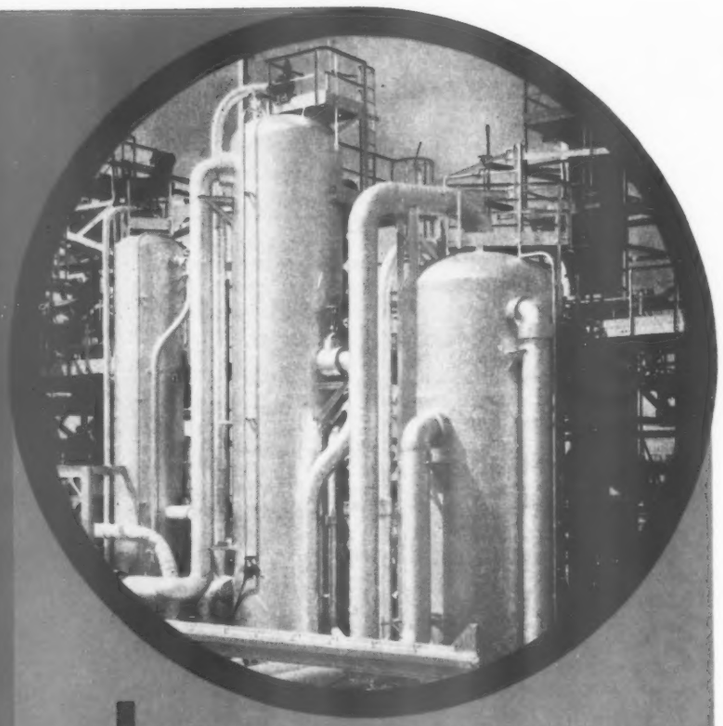

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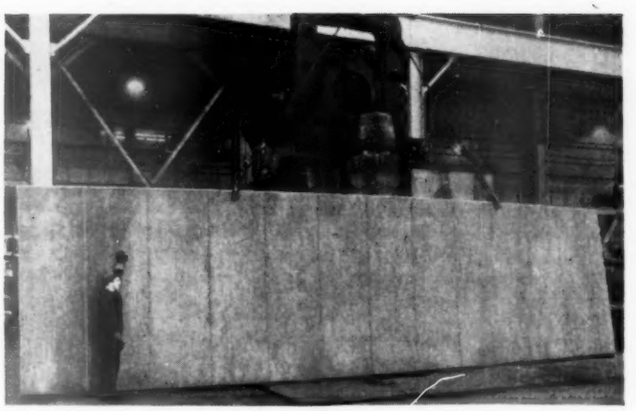


Clad steel plates can be produced in the greatest length and width of base metal obtainable from steel mills, the maker states, and can be fabricated into vessels of the largest size that can be shipped. This plate is 38 feet long, 10 feet wide and 1 1/16 inch thick

acetylene, atomic hydrogen, or electric arc welding. The surfaced slab may be rolled to plate and retains the alloy deposit on the deposited surface, or used as welded.

Another fusion welding process given wide publicity in the past 2 years is Kinkead's process. A fusion bonded deposit of a secondary metal is fused with a carbon arc from a mixture of metallic forming material to the surface of a steel slab. The secondary metal is retained as a cladding on the plate or sheet after rolling to gage.

Two variations of the electric resistance welding process are used by Babcock & Wilcox Co. and A. O. Smith Corp. In this process a composite plate is fabricated by electric resistance spot welding a finish rolled alloy sheet to a rolled steel plate. No additional rolling of the composite is required. The first named company employs overlapping spot welds while the latter uses spot welds on close centers.

Fusion Welding Process

The above outline gives as briefly as possible the leading characteristics of the different composite corrosion-resisting metals. The Pluramelt process was developed by M. W. Kellogg Co. because of the older processes were found not to be entirely satisfactory for meeting the requirements of the petroleum industry for pressure vessels and more success was achieved by spot welding thin sheets of stainless steel on plate. This composite material is a product of an electric furnace melting technique, in the words of Mr. Hopkins. As a result all of the special composition materials and only part of the low-cost materials are melted and integrally joined during the melting operation. The furnace proper is radically different from the conventional type of electric furnace in that the functions of steel making and of the mold are combined.

"The composition of the special steels is controlled simply and within the ranges specified in commercial practice today," he explains. It is emphasized that "single ingots of two or more compositions, integrally bonded together, are produced and that it is possible to change the composition, within limits, even during the melting operation." Experience so far has been limited to stainless alloys cladding (high chromium-iron and chromium-nickel-iron) on soft or medium steel, and tool steel types on soft steel bases, but it is believed that other alloys can be applied equally well.

Robert E. Kinkead, Cleveland consulting engineer, describes his process as an interesting outgrowth of electric arc welding. In this process the metal of the surface of an ingot or slab being treated can be used for the ferrous component of the alloy surface or part of it may be obtained from this surface. In the case of chromium-nickel alloys, ferrochrome and pure nickel, shot are spread uniformly on the surface to be alloyed. The surface is then covered with a layer of furnace slag and carbon arc heads are used to melt both the surface being treated and the alloying element being added. As many heads are used as are necessary to cover the width of the metal being alloyed. Depending on the thickness of the composite metal to be made, the arcs may be 3 to 18 inches apart. The automatic carbon arc heads are mounted on a carriage which oscillates sideways and moves forward to cover tne entire surface with uniform distribution of heat. The carbon arcs operate through the slag which excludes air and serves the same purpose as a blanket of flux in some other welding processes.

Mr. Kinkead called attention also to the possibility of applying tin plate thickness of stainless steel and said this would produce a product which will do many things not now being done by tin plate and galvanized.

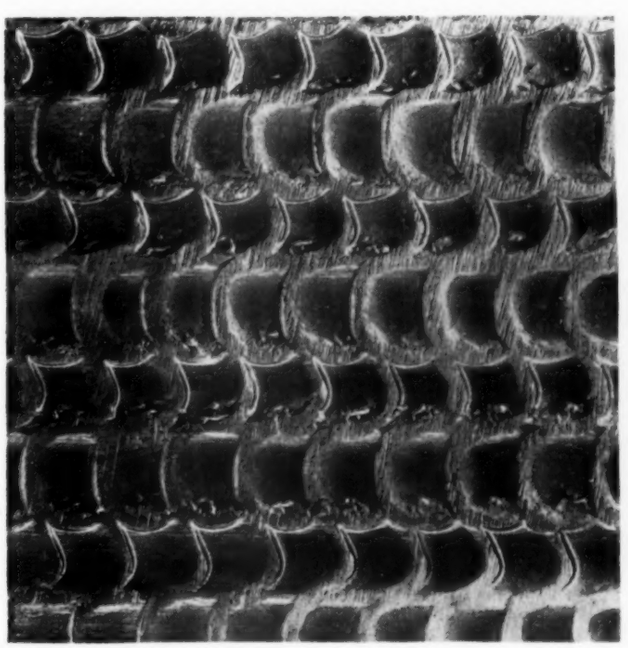
Resistance Welding Process

The Babcock & Wilcox Co. claims to have the only process by which an alloy is resistance-welded to the base metal over the entire surface without unbonded areas. The alloy lining is composed of as many layers of alloy as are necessary for the desired thickness. The layer construction makes this bonding process possible by increasing the resistance to the flow of welding current. Use of layers also reduces the required pressure on the sheets to complete the bond and distortion is said to be less than where a single heavy lining-sheet is used. Current must pass through several areas of contact between the lining sheets, thus providing the electrical resistance necessary for the process.

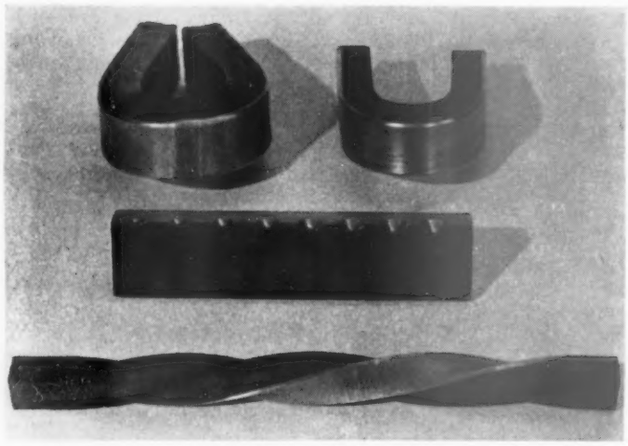
One of the layers is a nickel sheet placed between the base metal and the alloy lining. The purpose of this nickel layer is to stop carbon migration from the base metal to the alloy. Thus, interface precipitation of carbon is said to be prevented when the materials are subjected to high temperatures during bonding.

The strength of bond between the alloy and base metal is said to be particularly important in bubble towers and fractionating columns that have trays and other internal fittings. Such parts are fillet welded with alloy weld metal directly to the alloy lining. Punching of holes in the lining and welding the internals to the base metal is thus avoided.

Jessop's stainless-clad is made two sheets at a time by sandwiching two stainless steel sheets, with a separating compound (inert oxide, lacquer and thinner) between them, between two thicker mild steel plates of slightly larger dimension. The sides of the stainless steel



The surface appearance of the alloy side of a clad steel fabricated by electric resistance welding



Bend, deform and twist tests illustrate the severity of a few of the tests which clad steels undergo

sheets in contact with the mild steel are previously electroplated with .009-.012 inch of iron. The assembly is peripherally welded to spacer bars, rolled to desired size, and the edges trimmed off to separate the two plates. These are then annealed, flattened, sandblasted and/or pickled.

This clad steel is available in plates up to 2-inch gauge 135 x 100 inches. The 1-inch plate may be 192 x 130 inches or 16 x 11 feet while ¾-inch plate may be 384 x 80 inches or 32 x 6½ feet. These are merely a few of the dimensions which are available.

Selection by Application

All of these methods are being successfully used, according to Mr. Fitch[4]. In some cases one method is more economical than another, thus, consideration should be given to the application in selection of material. For example, a ⅛-inch stainless sheet may be bonded to a 2-inch mild steel plate most economically by spot or seam welding, he finds. On the other hand spot welding is said to be not best for plates about ¾-inch thick. There are advantages claimed for one method over another but the significant fact is that each product has been and is being used in service with satsifaction.

Answering the question of usefulness of clad metals in view of the presence of dissimilar metals, he said, "in actual practice it has been found that the theoretical differences (such as different coefficient of expansion) have not caused any real trouble. Tests have been made on clad material as high as 1700° F. with no separation of components. Special forms of tests and special types of heat treatment have been developed, and special properties of the material have been determined."

These tests include, for example, punching out the alloy surface after drilling out the backing with a flat-bottom drill, inside and outside bends, twisted inside bends, machined chip, pealing to test the "bond," corrosion, and heating and cooling. Metal cladding is also used extensively abroad and in Engineering Progress (Berlin) for July, 1940, it is stated that practical experience shows that in vessels made from clad steel, no distortion need be feared from difference in the coefficient of expansion of different metals.

Mr. Fitch added that "it is not impossible that lighter gage clad steels may also be made commercially significant through some collateral advantage (such as workability) that will be strongly reflected in overall cost. So far as the future is concerned, this should be a rapidly growing field and should eventually assume very substantial proportions. Should the U. S. become involved in war, clad metals should assume further importance because they enable conservation of various alloys not easily obtained in this country."

Under present conditions, with demand for steel high, a few companies have discontinued production of clad steels and development of methods for its production, it is understood. Among these are Republic Steel Corp., which has a rolling process similar to Lukens', and Carnegie-Illinois Steel Corp., which has had an extensive development program in clad steel but never marketed such a product. Bethlehem Steel Corp., so far also has produced no clad steel.

Those who produce no clad steel argue that there is not enough difference in cost between it and solid alloy plate to warrant its use; that the relatively thin plates are harder to weld than the thicker carbon steel plate; that where small plates are used much more welding is required; that difficulties have been experienced in blistering, grinding off of high spots making the lining thinner at certain spots; and that dilution of alloy at the joints has allowed corrosion to reach the backing metal, so that reports on 2 to 3 years service have been disappointing. Where linings are required they recommend the welding of sheet linings in the vessels.

Sheet Alloy Linings

The objection of difference in coefficient of expansion has also been made in the case of sheet metal linings for reaction vessels. It has been pointed out that lining heats up first, tending to produce wrinkles, and cools off first when the process is shut down, tending to pull the lining away from the wall and break away from the welds. There is a compensating advantage here, however, when the lining has been properly applied, in the insulation provided by air space between lining and wall.

Application methods have undergone change since the first corrosion-resistant steel-lined pressure vessels were put in service. According to G. E. Gude, Jr.[5], Wyatt Metal & Boiler Works, their first liners were punched with holes ⅝ inches in diameter on 1½-inch triangular centers and arc-welded to the inside of the vessel. The alloy sheets were about 18 inches wide by 3 to 4 feet long. While these were said to be satisfactory the cost of application was high. A later variation was to replace the holes with slots 3/16 inch to ¼ inch wide and ¾ to 1 inch long on 4-inch longitudinal centers and 3 to 4-inch crosswise centers, running a corrosion resistant bead in a slot joining the corrosion resistant steel to a carbon steel base plate. Various spacings were tried but the costs were still excessive.

The latest method is to use strips 4 to 6 inches wide and 3 feet or more long. Strips are applied with sufficient space to allow the welder to lay one bead of high alloy welding rod in between, thereby joining two parallel edges and simultaneously welding both edges to the carbon steel plate lying underneath. No intermediate welding by plugs or strips is required. The result is said to be a smooth appearing surface with a minimum of welding.

The manhole necks and large nozzles are lined with strips in a similar manner and the faces of flanges are coated with corrosion resistant steel weld metal applied in three layers, subsequently machined. Smaller openings are lined with corrosion-resistant steel tubing, welded to the flange with a continuous bead around the periphery at the inside of the nozzle.

Stress relieving of such vessels is necessary after lining and the method is highly successful, Mr. Gude stated. The lining may be 18-8 stainless, monel, nickel or other metal. Ordinarily the thickness of the lining is 12 to 16 gage. The welding rod varies with the material of which the lining is made. It is customary to use titanium or columbium as a stabilizing element to offset the possibility of intergranular corrosion from carbide precipitation when welding stainless. Welding rod of higher alloy content than the lining is used generally to offset loss and diffusion. A small rod is used to minimize heat and possible distortion. One of the important preliminaries in preparing for welding the lining is thorough sand blasting of the base metal.

Metal Spraying

Developments in and utilization of metal-spraying technique and equipment have increased considerably the use

[5] Steel, Aug. 26, 1940, p. 44.

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of this process for applying protective coatings, it is indicated by recent statements of two engineers with firms manufacturing metal sprayers. Two factors are most influential in recent extensions of metal-spray applications, according to E. T. Parkinson, Metallizing Co. of America, Ins.[6] These are lowered costs and improved depositing efficiency through higher speeds and thicker deposits. Thus, a new wire-type gun with special head that sprays steel or non-ferrous metals successfully and economically with acetylene, propane, or natural gas has aided in reducing costs in some instances over 50%, he said. Metal can be sprayed at an hourly cost for gas of 25-30c if piped natural gas is available.

In new guns pressure can be varied about 50% and the gun still have a neutral flame. Also because it is now possible to apply a single layer as thick as ½ inch with one pass of the gun, a much stronger, lamination-free deposit can be produced. Speed is better, about 30% faster spraying of steel can be accomplished and in an hour's run 8-10 lb. of steel, 7-9 lb. of aluminum, 15-20 lb. of bronze, or 30-35 lb. of zinc can be deposited. A heavy-duty gun uses 3 lb. of propane per hour. Oxygen consumption is 75 cu. ft. per hour. Bond strengths also are now high—12,000-15,000 psi., he said.

Oil refineries use two types of gun, one feeding wire and the other powdered metal. Proper preparation of surface is even more important than when welding sheet metal linings. It is considered the most important single factor in metalizing. The surface should be sand blasted to the pure base metal and, in addition, the importance of keeping moisture away from the surface to be metallized cannot be over emphasized, Mr. Parkinson said. In moderately humid weather, metallizing should be done within 4 hours after sand blasting.

Several metals other than aluminum can be successfully employed for protection of refinery equipment against corrosion, it was brought out. In a refinery at Artesia, N. M., the bubble tower of a cracking unit processing a high sulfur topped crude had lost metal at 0.129 inch per year by localized corrosion and erosion. The tower was metallized in the corrosive zone with 12 coats of 18-8 stainless steel to a thickness of 0.02 inch. Three inspections following installation of the liner indicate successful protection was secured.

The metallizing process has been thought of as being of greatest value in rebuilding worn surfaces, but in addition to this and the just mentioned application at Artesia, W. C. Reid, Metallizing Engineering Co., Inc., points out that there are now important applications on new equipment whereby surfaces of special corrosion or wear resistance are prepared[7]. Stainless steel sprayed on steel pump pistons, for instance, not only protects base metal from corrosion but from abrasive wear.

He calls attention to the fact that three new processes have been developed to protect iron and steels from scaling at elevated temperatures. In the first a coat of aluminum is applied, over which a liquid seal is sprayed, and then the article heat treated so that the aluminum and iron fuse together. Such surfaces are said to be excellent protection against normal atmospheres at 1750° F., as well as when sulfurous gas is encountered. The other two processes employ a patented alloy and no heat treatment and are said to be good above 2000° F.

Among the applications where metallizing has been successfully employed are the surfacing of storage tanks and drums, ends of pipestill tubes, exchanger tube sheets, heads, shells, and pump rods, for which aluminum, red brass, 18-8 stainless steel, zinc and lead have been used. Mr. Parkinson concluded that "metal spraying has become a valuable maintenance tool and is worth serious consideration by any company continually faced with corrosion problems or doing maintenance work where metallizing might be used to advantage. Most of the common metals except chromium (which cannot be obtained commercially as wire) can be used for metal spraying by the wire process."

[6] Metal & Alloys, Oct., 1940.
[7] Metal Progress, Oct., 1940.

Committee D-2 Drafting New "Liberal" Gum Test

A so-called "liberal" method for determining gum stability of gasoline is being drafted for Committee D-2 of the American Society for Testing Materials by Section I on Gum of Technical Committee A, it has just been announced by the Society following meetings in January at Detroit which attracted more members than for several years.

It is hoped that it will be possible to specify the basic characteristics of the bomb and the accessories in such a manner as to permit apparatus manufacturers to incorporate their own conceptions of acceptable design without reducing the accuracy and precision of the test. The section is also attempting to develop a gum stability test for aviation gasoline which will meet with general acceptance by both the producers and users of aviation gasoline.

The Viscosity subcommittee believes that A. P. I. Alpha and Beta viscosity standard oils should be continued and possibly be supplemented by a third oil of low viscosity. It was decided to advise the A. P. I. Committee on Viscosity accordingly. The subcommittee plans to study the possibility of devising a method which would distinguish between true and so-called "false" viscosity of lubricating oils. This problem has been referred to Committee D-2 by the Society of Automotive Engineers.

Ten methods of procedure for determination of insoluble content of used oils have been circulated by Subcommittee X charged with this problem. This initial step will be followed by correlation of the best features of the various methods. The Subcommittee on Determination of Sulphur, Chlorine, and Phosphorus in EP Lubricants has circulated analytical procedures to its membership for investigation and reactions.

Subcommittee on Neutralization Number and Saponification has found that the results obtained by the use of methyl ethyl ketone in the determination of saponification number are of sufficient interest to warrant circulation for committee reactions. The subcommittee has been considering potentiometric methods for the determination of neutralization number. It was advocated that the specific method under discussion would be published for information only at this time. The subcommittee proposes to recommend to Committee D-2 that the proposed method of test for neutralization number of petroleum products and lubricants which was published last year for information only, supplant present Tentative Method D 188.

The Subcommittee on Carbon Residue reported a correlation of results obtained by use of the Ramsbottom and Conradson methods and plans to recommend that the data be published as part of the annual report of Committee D-2. The Subcommittee on Natural Gasoline has reviewed a number of minor suggested revisions in the Reid Vapor Pressure method and plan to incorporate these for committee reactions.

The Subcommittee on Pharmaceutical Tests has developed a test for carbonizable substances in paraffin and since co-operative testing indicates that it is satisfactory, it will be submitted to Committee D-2 for approval.

Last year the specifications for the distillation condenser were broadened in order to permit suppliers to design apparatus which did not conform to the conventional type of condenser. At that time the modification was applied to distillation Methods D 86 (Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products) and D 216 (Distillation of Natural Gasoline). Action was taken toward making similar changes in Methods D 188 (Distillation of Gas Oil), D 447 (Distillation of Plant Spray Oils), and D 285 (Distillation of Crude Petroleum).

Fred F. Diwoky has been made foreman in charge of asphalt production at the Wood River refinery of Standard Oil Co. (Ind.) after 10 years in the Whiting research laboratory. His paper on the delayed coking process before the American Petroleum Institute in November, 1938, will be recalled.

Speed-Knock Relations Show Octane Number Limitations

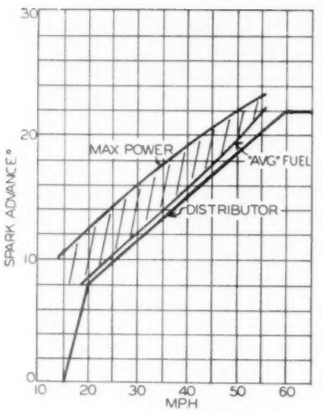


Fig. 1

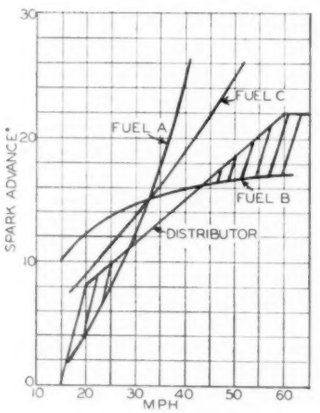


Fig. 2

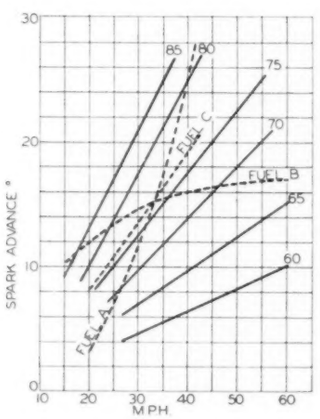


Fig. 3

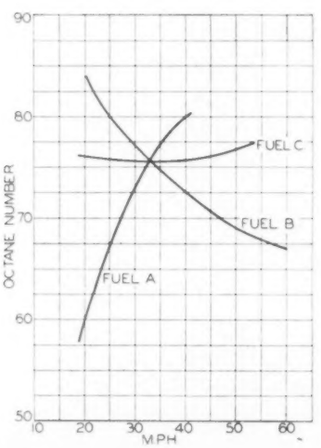


Fig. 4

A new concept of the engine-fuel relationship with respect knocking, shedding more light on the detonation problem, was discussed by F. C. Burk, Atlantic Refining Co., before the Metropolitan Section of the Society of Automotive Engineers recently, to show the status of the knock problem of engine manufacturers and petroleum refiners. Particular emphasis was laid upon the difference in knock tendencies throughout the normal engine speed range. He points out that "there is no such thing as an absolute measure of the anti-knock value of gasoline."

The fuel which would prevent knock throughout the speed range in most cars, when the spark is set for maximum power, would be higher in octane number than is now commercially available, Mr. Burk said. Fig. 1 shows the spark advance at various engine speeds for maximum power on a given engine and the spark advance for incipient knock for a hypothetical "average" commercial fuel. The shaded area represents the range throughout which knock would be obtained for this fuel if the spark were set for maximum power. The engine manufacturer, in order to prevent knock on this "average" gasoline, designs his distributor to give a spark advance throughout the speed range as shown by the distributor curve. If all fuel behaved like this hypothetical fuel, Mr. Burk said, the design of an engine would be a fairly simple matter, at least from the knock standpoint.

Illustrating the difference between motor fuels, Fig. 2 was shown with the same distributor adjustment of spark advance as Fig. 1. Mr. Burk explained, "from this chart it may be seen that fuel A is deficient in anti-knock value at low speeds but excels in anti-knock value in the high speed range. Conversely, Fuel B excels in anti-knock value in the low speed range but is deficient in the high-speed range." Fuel C, like the "average" fuel of Fig. 1, does not knock at any point in the speed range. The chart was used to illustrate the fact that a single setting of distributor advance to prevent knock with fuels like A and B can be provided only with loss of power at some portions of the speed range.

Continuing, he showed the desirability of expressing the combination of fuel anti-knock quality and engine requirement in terms of some standard. Fig. 3 shows a spark advance pattern for reference fuels of known octane value with the 3 fuels of Fig. 2 superimposed. By picking off the intercepts of the unknown fuels where they cross the reference fuels, it is possible to express the octane value of each gasoline at each speed. Fig. 4 is the result for the 3 fuels.

"The most striking factors shown by this chart," Mr. Burk said, "are that any single octane number for a gasoline is meaningless unless the speed is specified, and second, the widely different relationship between the octane numbers for each gasoline throughout the speed range." He warned that although these charts showed means of determining significant octane values of gasolines throughout the speed range, it must be remembered that such information is of little value unless anti-knock requirement of the engine using the fuel is known.

Fig. 5 is a plot showing the reference fuel framework of Fig. 3 but with the distributor spark advance curve of Fig. 1 substituted for incipient knock curves of the test fuels. "If we pick off the intercepts of the distributor advance curve for the reference fuel pattern, we can obtain the octane requirement of this particular engine at all engine speeds," Mr. Burk said. "Fig. 6 is a plot of the relationship between the engine octane requirement and engine speed.

"Now it is possible to combine the octane number versus speed relationship for each gasoline and the octane

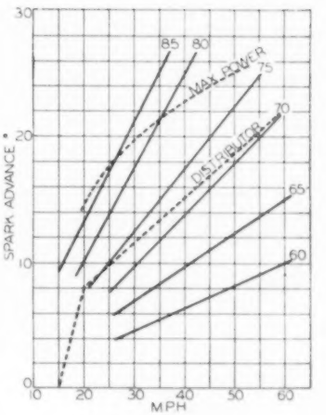


Fig. 5

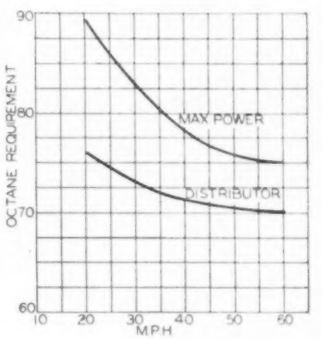


Fig. 6

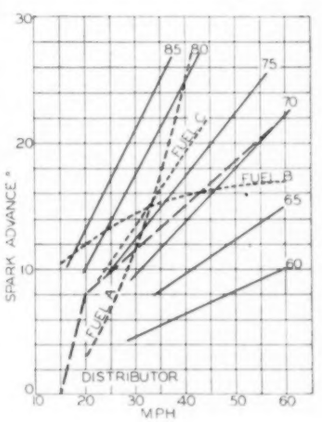


Fig. 7

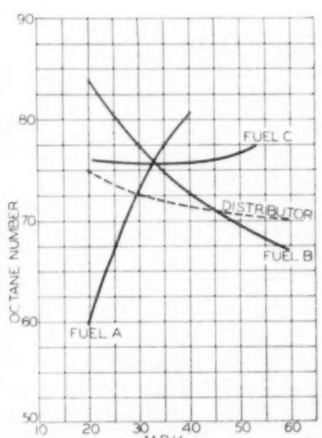


Fig. 8

requirement versus speed curve for the engine and see how well each gasoline satisfies the particular design in question. Fig. 7 is such a plot and Fig. 8 shows the same information in simpler terms."

It was pointed out in conclusion that there are other fuel problems involved which, if brought out, "would entail a very lengthy discussion and perhaps cloud the main theme on anti-knock evaluation of gasolines and engines."

Automatic Knock Suppressor Reacts to Knock Vibrations

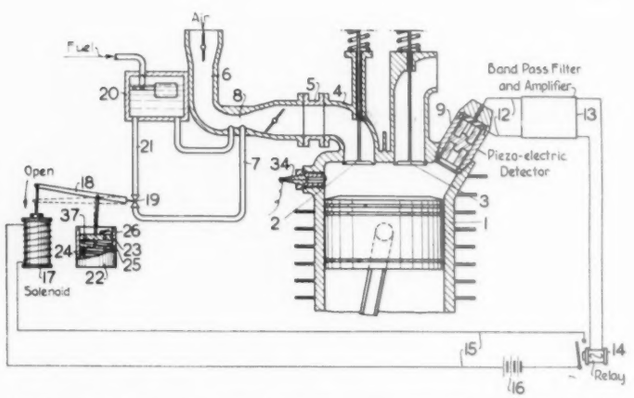
An arrangement for suppressing detonation in an internal combustion engine by automatic adjustment of engine operating controls is among recent patents assigned to Shell Development Co. (No. 2,220,558). According to the invention the apparatus is arranged so that a "knock-detector" adjusts controls which modify operating conditions in the engine such as to suppress detonation.

The "knock detector" employs well-known piezo-electric principles for response to knock vibrations, although the invention is not confined to this device. A mechanical type or magnetic induction type of detector may be used. An amplifier, relay, and solenoid translate the detector impulses into mechanical forces which control valves or other desired engine adjustments.

The engine control members may serve to modify the quantity or quality of the fuel, to change the ratio of fuel to air in the mixture, to affect the temperature of the air introduced, to change intake manifold pressure or to change the composition of the fuel by addition of anti-knock dopes, the inventor states. Also, the conditions of ignition and combustion in the cylinder may be modified by changing the ignition timing, and intensity of the cylinder cooling, or the engine speed altered. The engine load might also be altered by changing the gear ratio, or in the case of aircraft engines driving a variable-pitch propeller, by changing the pitch of the blades, it is pointed out.

The operation of the control is as follows: Upon vibrations of detonating frequency occurring in an engine cylinder, an electrical impulse created by compression of the piezo-electric crystals in the detector (9 in the accompanying schematic diagram) is amplified after elimination of current of undesired frequencies and operates a relay (14). The relay closes a battery circuit to energize a solenoid which, in this instance, operates valve (19) in a supplementary fuel line from the carburetor (20), thus enriching the mixture passing into the cylinder.

The dampering device (22) serves to slow down the movement of the arm (18) and prevent too sudden changes in mixture ratio which would tend to disturb the even running of the engine. Since the frequencies of the pressure waves occurring during detonation will vary with different engines, it is necessary to calibrate the detectors to those frequencies at which detonation is actually present in the cylinders to be controlled.



Schematic diagram of a detonation suppression system for internal combustion engines employing a piezo-electric detector for detonation vibrations

It is pointed out that by the use of this device it is possible to operate an internal combustion engine at the most efficient fuel consumption point for the particular engine speed and power desired. At present, for example, it is a practice in aircraft operation to run the motor on an unnecessarily rich mixture in order to avoid possible damage to the engine through detonation. As a result cruising range or pay load is reduced. The automatic regulation of the fuel-air mixture to closer limits is said to result in greater efficiency, without danger of damage to the engine.

In the conventional automatic ignition control systems the ignition timing is modified in response to changes in the manifold gas pressures. With such an arrangement it is impossible to advance or retard the time of ignition in response to detonation, it is stated, as manifold gas pressure changes are neither a positive nor sufficiently sensitive indication of the occurrence or non-occurrence of detonation.

Use Electro-Acoustic Detection of Knocking

The fact that only one or two cylinders in a multi-cylinder engine knock at the same time with a particular fuel while the rest work satisfactorily is used as an argument by A. W. Schmidt, in a recent issue of Erdol and Kohle,* that the causes of knock are not to be found in the fuel so much as in the motor. Various causes are suggested for this erratic knocking: unfavorable heat obstructions, unequal compression ratios of the cylinders due to construction, non-uniformities in the position of the ignition, and, most of all, irregularities in mixture formation.

Schmidt concluded that "the hope of automotive engineers that the result of antiknock testing in the one-cylinder engine could be carried over directly to multi-cylinder motors has not been fulfilled. The efforts of the Benzolverband to obtain this correlation in experiments conducted in about 1935 were as unsuccessful as the attempts of Americans to do so. It is an objection to the determination of the octane number that it embraces only a short span of the knocking."

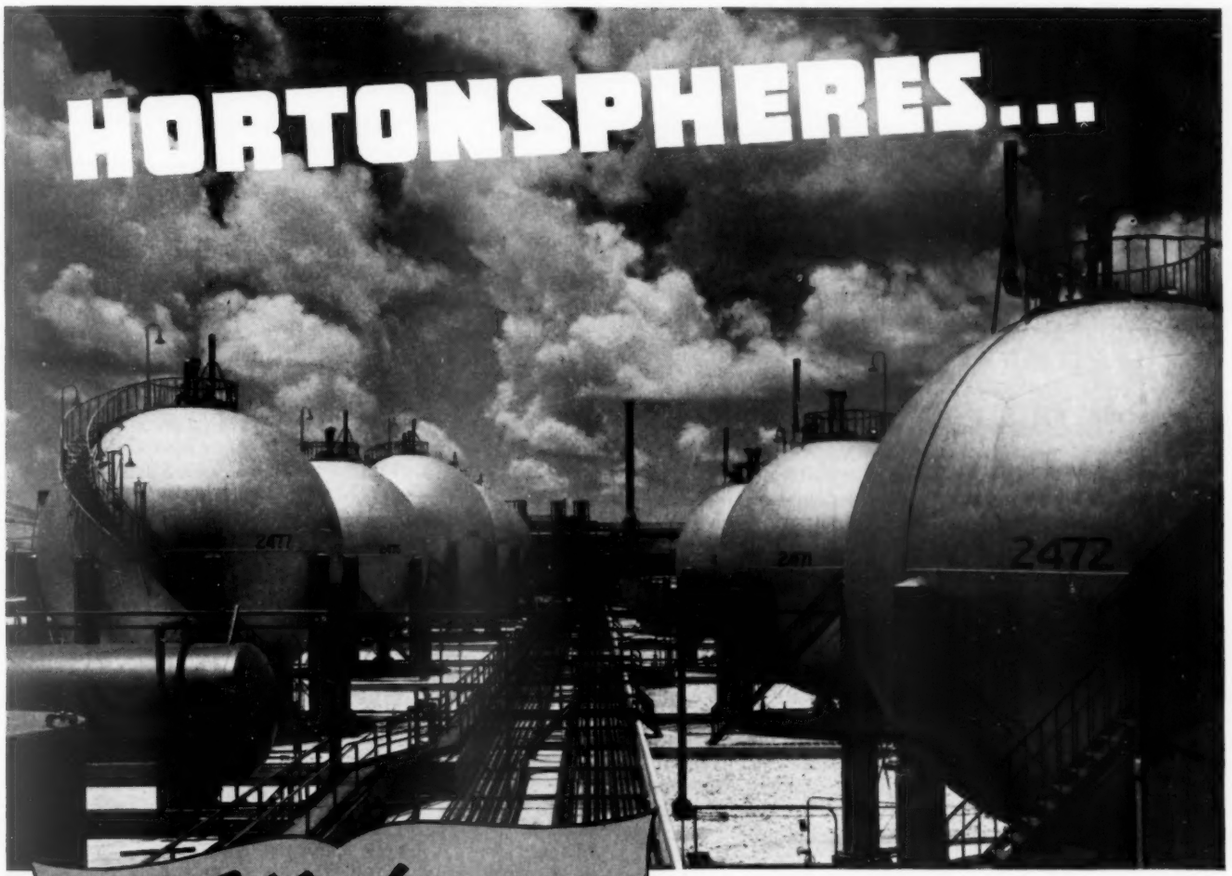
Experiments described by Schmidt were undertaken to establish the progress of knocking in its whole course, even beginning with inaudible knock, and if possible to represent the progress in the form of curves. An electro-acoustic method was developed, in which the sounds were taken up with microphones and made visible with Braun's tubes. External noises were screened out so effectively that they did not interfere with the measurements. The most significant information obtained in this series of experiments was that by means of the electro-acoustic method it was possible to get a simultaneous picture of all the cylinders and to observe their behavior, through the individuality of the oscillographs.

Tests were made both in the laboratory and on the road, the latter with apparatus somewhat reduced in size. Road tests showed that knocking took place far more readily if the engine was hot and at thermal equilibrium. The method was said to offer a whole series of possibilities of investigating the reciprocal relations of fuel and motor in operation.

*Translated in Universal Oil Products Co. Library Bulletin of Abstracts, Dec. 18 and 25, 1940 (Vol. XV, Nos. 51 and 52).

API Refining Proceedings

Proceedings of the Refining Section of the twenty-first annual meeting of the American Petroleum Institute, Nov. 11-15, 1940, have been published in a 101-page paper-bound book of 10 papers, including their discussion, and reports of committees on fire prevention in refineries, on motor fuel research, and on standardization of refinery equipment. Copies are obtainable from the institute headquarters, 50 W. Fiftieth St., New York.



Modern PRESSURE STORAGE UNITS for handling charging stock at POLY PLANTS

ONE of the major problems encountered in the operation of polymerization plants is the maintenance of a constant supply of charging stock. This problem is being solved effectively by installing Hortonspheres for pressure storage of recovered refinery gases and light stocks, such as butanes, received from oil fields. They are also used to store butanes and pentanes produced in fractionating units. The eight spheres illustrated above range from 2,500 to 7,500-bbls. capacity, and are installed at the Gulf Oil Corporation refinery and poly plant at Port Arthur, Texas.

Hortonspheres are built in a wide range of capacities, from 1,000 to 20,000-bbls., and for pressures of from 25 to 250 lbs. per sq. in. With proper pressure specified, the Hortonsphere will stop all breathing and boiling losses, and will also practically eliminate filling losses after the first filling. Please write our nearest office for complete information.

CHICAGO BRIDGE & IRON COMPANY

Cleveland	2206 Builder's Exchange	Philadelphia	1614-1700 Walnut St.	Dallas	1639 Praetorian Bldg.
Houston	918 Richmond Avenue	Chicago	2125 McCormick Bldg.	San Francisco	1060 Rialto Bldg.
Tulsa	1607 Hunt Bldg.	Detroit	1513 Lafayette Bldg.	Los Angeles	1422 Wm. Fox Bldg.
New York	3345-165 Broadway Bldg.	Birmingham	1534 North 50th Street	Boston	1516 Consolidated Gas Bldg.

Fabricating Plants in BIRMINGHAM, CHICAGO, and GREENVILLE, PA.

LICENSEES: Horton Steel Works, Limited, Fort Erie, Ontario, Canada; The Motherwell Bridge & Engineering Co., Ltd., Motherwell, Scotland; The Whessoe Foundry & Engineering Co., Ltd., London, England; Worms & Cie., Paris, France; Campagnia Tecnica Industrie Petroli S.A.I., Rome, Italy.

Cooler Saves Oil In Diesel Service

THE best method of cooling motor oil subjected to excessive temperatures in truck, bus, or other service is by radiators in an air blast, the results of extensive investigation by Federal-Mogul Co. show, according to R. A. Watson, service engineer, in the S. A. E. Journal (Feb. 1941). Considerable importance is attached to oil cooling because of improvement in bearing life, influence on cylinder lubrication, and on the effective life of the lubricant through reduction of oxidation.

Heat exchangers utilizing the engine cooling water were found impractical for engines where oil control to 180° F. maximum is desired. Also it was found not feasible to jacket the oil pan or to employ cooling water coils in the oil pan. These two methods were rejected because of size requirements.

A temperature of 180° F. was recognized as giving optimum overall engine performance, and Mr. Watson concluded that it is possible to maintain the lubricating oil temperature at or below this value in a large automotive diesel engine. As a result a much longer bearing life may be expected, he said.

The recommended type of cooler is what is known as the "tractor-type" cooler which is mounted in front of the cooling water radiator on diesel-engine-powered trucks. As high as 40° F. reduction in maximum lubricating oil temperature is said to be normal on the road, this being a reduction in bearing temperature of 30° F. The promise of such an installation appears to be the fact that the cooling medium, air, is at a relatively low temperature, which means that the cooler can be small, light, and free of complicated water plumbing. Special provisions are made for low atmospheric temperatures and starting.

The accompanying table illustrates the effect of an oil cooler on oil deterioration. This shows analyses of crankcase oil from two new engines operated under full-load conditions in an atmospheric temperature of 125° F. using the same lubricant. Duration of the test was 500 hours. Oil was drained every 60 hours.

In connection with the investigation of oil cooling, it was found that a change in cooling water temperature has the effect also of a built-in oil cooler. Lowering the water temperature from 200° F. to 160° F. reduced the oil temperature 13° F. This decrease in lubricating oil temperature produced an 8.5° F. reduction in bearing temperature, it was shown. The remaining 4.5° F. change was charged to direct heat transfer from the bearing to the cooler engine block.

A change in SAE viscosity grade to the next lighter grade resulted in a reduction in bearing temperature of 4° F. While this helps, it is pointed out that this is far from sufficient to control bearing temperature adequately. With regard to increasing the rate of flow of lubricating oil, attention is called to the fact that with lubricating oil at the same temperature or at a greater temperature than the bearing, no benefit results from such an increase. This condition is especially true while hill-climbing, the author states. The reduction in temperature obtained by increased oil flow under more favorable conditions is believed to be small in comparison to that attainable by control of lubricating oil temperature.

Product Testing

Giving emphasis to the extent of laboratory tests to which Standard of Indiana products are subjected, an enclosure entitled "To Be Sure" accompanied dividend checks to the company's 100,000 stockholders this month. In the laboratories are 232 workers who make 164,000 tests a month, stockholders are told.

Simple Equation for Density

An equation for determining the density of normal and branched-chain paraffin hydrocarbons, based on the number of carbon atoms, has been worked out by George Calingaert, H. A. Beatty, and G. W. Thomson, Ethyl Gasoline Corp., and R. C. Kuder, formerly with the company. The literature was searched for all information on densities and it was then shown that the best values selected can be lined up on curves given by simple mathematical equations. The variation of density with temperature also was expressed in the form of equations. The equations eliminate the necessity of using graphs or tables for each hydrocarbon, and permit the prediction of values for those compounds for which no determinations have been made, as well as detect erroneous data now recorded. An article describing the method is in Ind. Eng. Chem., Jan., 1941.

4000-Bbl. Treater

Chalmette Petroleum Corp. has started operation of a 4000-bbl. Perco copper sweetening unit at New Orleans, it is announced by F. E. Holsten, vice president. The unit was built by L. S. Gregory Co., Tulsa.

Asphalt Railroad Ballast Successful in Test

It now seems probable that asphalt will prove applicable to the ballasting of railways and that a vast new market may develop for this petroleum product, it is reported by The Asphalt Institute as the result of a test conducted by the New York Central Railroad. The results of the test were reported by J. M. Podmore, chairman of a committee appointed by the American Railway Engineering Association.

The test section, 600 feet of high-speed track at Bryan, Ohio, installed in the Fall of 1939, took 3960 gals. of emulsified asphalt. This is 6.6 gals. per lineal foot of track, equivalent to 3.3 gals. of asphalt cement, or about 75 tons of asphalt cement to a mile track.

Since there are 411,324 miles of railway track in the U. S., an asphalt consumption of 30,500,000 tons is theoretically possible, it is pointed out. Nothing like this total will be used but the requirements are capable of extensive economic development to the advantage of the railroads and the asphalt industry, it is believed.

Relative Deterioration of Diesel-Engine Lubricating Oil Used in 4-Cyl., 4 1/4-In. Bore Engine With and Without an Oil Cooler

	Without Cooler	With Cooler	Without Cooler	With Cooler	Without Cooler	With Cooler	Without Cooler	With Cooler
Oil Hours	60	56½	61½	60	60	60	60	60
Engine Hours	62	62¾	127½	245	242½	365	307½	425
Gravity, API at 60°F.	17.5	18.7	17.9	19.1	17.5	19.3	17.8	19.2
Viscosity, S. U. at 100°F.	978	880	1063	723	1113	703	1172	693
Viscosity, S. U. at 130°F.	333	309	353	262	383	258	380	255
Viscosity, S. U. at 210°F.	64	64	65	59	69	59	68	59
Insoluble, mg/gr.	12.49	5.55	17.47	0.97	5.93	0.98	114.72	1.01
KOH Abs., mg/gr. (Acidity)	6.0	3.62	8.20	2.43	5.46	2.43	6.65	4.05
Ash, %	0.15	0.17	0.19	0.16	0.14	0.17	0.22	0.17

644.6
934.314

Air Movers May Replace Steam In Tank Cleaning Preparation

Removal of hazardous vapors from tanks by means of various mechanical ventilating devices now being developed was discussed by Oscar B. Lewis, manager safety department, Ethyl Gasoline Corp., in the Petroleum Section of the National Safety Congress in Chicago recently, as a possible improvement over steaming as a preparation for cleaning tanks. Mr. Lewis believes that certain of these procedures will be advantageous but that the actual extent to which the advantages will materialize in practice will have to be determined by careful and critical study of operations. He added that Ethyl's safety department expects to subject them to experimental tests. Use on large tanks has not been too successful, but it is felt that with study of tank design and improved air mover design, results can be obtained similar to those recorded recently on a 5000-bbl. tank.

The advantages of mechanically moving the air from tanks, as against steaming, were summarized as follows:

1. "It is cheaper and quicker.
2. "The equipment is mobile.
3. "Lower temperatures result within tanks.
4. "Continuous ventilation is possible.
5. "It is an added safeguard and operates to reduce most of the hazards."

While one would not be justified in concluding that the lead hazard has actually been enlarged by steaming, figures were shown which made it apparent that it has not been effectively reduced. Mr. Lewis also pointed out that "recent accidents have all been in tanks which had been steamed in preparation for cleaning" even though these have occurred only when such tanks were cleaned without following recommended safeguards.

"The theory of freeing tanks of explosive mixtures is the same with mechanical air movers as with steam. With approximately the same hazard to be guarded against when opening the tank, the use of mechanical ventilation improves conditions immediately and, after passing through the explosive range, keeps conditions safe so far as fire and explosion are concerned. There are a number of efficient air movers on the market. Some of these operate on the venturi principle, generally with an annular nozzle, operating with either steam or air, in the throat of the device. The venturi type air movers are nearly always used as exhausters. Other equipment is of the positive displacement blower type which may be used either as exhausters or as positive pressure blowers.

"The quantity of steam to operate an air mover of any type is small compared to that required for raising an entire tank to a high temperature. Steaming through a 2-inch line may consume 11,000 lbs. of steam per hour. One exhauster type air mover on which data are available, is capable of moving 300,000 feet of air per hour with 9000 lbs. of steam."

In recent tests on a 5000-bbl. tank 35 feet in diameter, "a steam operated exhauster was placed on a roof manhole, creating a slight vacuum on the entire tank, which was continuously relieved by a stream of fresh air entering through the open lower manhole. The velocities within the tank ranged as high as 750 ft./min. as tested with an anemometer and there was measurable turbulence in all parts of the tank, at breathing levels, except for a space of about 6 inches around the periphery of the entrance manhole.

"The tank was tested and found to be free of gas within one hour after the gasoline had been removed and the exhauster placed in operation. Gas indicators can be used to show when a tank is safe where air movers are used but steaming on the other hand may continue needlessly, long after the safe point is reached. Although theoretically there may be 'channeling' of air from the top manhead to the bottom, preliminary tests have indicated that some movement or air occurs in every part of the tank."

Tank ventilation was recommended as long as there are men working in a tank, to carry away dust or combustion products and possible volatilized lead from paint, litharge, or scale.

Several suggestions were offered in designing of tanks. "First of all, larger oval manheads, or manheads of at least 20 inches in diameter, should be employed. There should be at least two of these on all vertical tanks, and as many more as are necessary to give reasonable natural ventilation and light. Some bottom opening for sludge disposal on small horizontal tanks might permit hosing from the outside, and thus remove the necessity for entry. On large tanks the ratio of one manhead to each 20,000 bbls. of capacity would help. But, of course, this means more expense and more opportunity for leaks. Another suggestion is that in building new tanks, the bottoms be cone shaped or sloped toward the draw-off." Mr. Lewis said that these suggestions on design do not help the immediate safety picture a great deal, but certainly improved design may be considered one of the major objectives of a long range program.

Refining Ranks High

Among nation's industries ranking high in contributions to the American system of private enterprise, petroleum refining ranks fifth, according to a survey released this past week by Theodore J. Kreps, economic advisor to Temporary National Economic (Monopoly) Committee. Name of this monograph is "Measurement of Social Performance in Business."

Tests showed extent to which 22 major industries are increasing production, employment and payrolls and whether money collected is being returned to the public in the form of wages or to a few individuals as interest and dividends.

Trace TEL Influence in Combustion

In experiments to investigate the influence of tetraethyl lead upon the flame velocity of hydrocarbon-air mixtures, J. Smittenberg and P. L. Kooijman find that tetraethyl lead exerts no influence on the velocity of the flame but only on the pre-flame reactions. Their findings were published in Recueil travaux chimiques Pays-Bas 59, 593 (1940), July-Aug.*

The explosive mixture was ignited by electric sparks in a cylindrical vessel measuring 4 by 10 cm. and the explosion wave was conducted against a disk which was attached on the end of a beam of a torsion balance. It was established by experiments how the influence of the manner of igniting and of the electrode material could be overcome.

For the 2,2,4-trimethylpentane-air mixture with the highest velocity of flame in ignition at room temperature the flame velocity dropped off steadily as the temperature of ignition was raised, up to the temperature of self-ignition, 986° F., on account of the decreasing weight of hydrocarbon and air contained in the reaction vessel. The same thing was true of the *n*-butane mixture, but beginning at 300° the velocity suddenly dropped off more abruptly on account of previous slow oxidation reactions going on in the interval between filling and ignition, which in the tests for securing a good temperature equilibrium was measured as 10 seconds.

To test the influence of adding tetraethyl lead, part of the air was conducted through pure tetraethyl lead. The concentration corresponded to about 6.6 cc. of the lead compound per liter of iso-octane. No effect of the addition could be established throughout the whole range of temperature investigated, except that the temperature of self-ignition was raised somewhat, to 1040° F. The same was true for *n*-butane, but the slow oxidation reaction starting from 572° F. was checked so that even with the temperature rising still further, the velocity of the flame dropped off steadily, as with iso-octane.

*Translated in Universal Oil Products Co. Library Bulletin of Abstracts, Dec. 11, 1940. (Vol. XV, No. 50)

New Prospecting Tool Succeeds in Tests

A new tool to aid the petroleum engineer and oil geologist to locate wholly unknown oil and gas fields was described, and results of its measurements over the Music Mountain oil field of Pennsylvania were disclosed last week at the opening session of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, by Sylvain Pirson, Pennsylvania State College.

The new method is in the class of geochemical methods, generally regarded as new in the art of discovering oil and gas fields, yet one of the oldest methods of locating wildcat wells, having been used in locating the first oil well along Oil Creek in 1858. Present methods have only increased the sensitivity of the method.

Three types of geochemical prospecting methods have been developed. The first depends on soil analysis for concentration of hydrocarbons, hydrogen and carbon monoxide, halides salts, bicarbonates salts, and wax. The second involves both soil and air analysis for equilibrium concentration of hydrocarbon gases in soil and air. These are known as static methods.

Pirson's method is a dynamic method known as a Geodynamic process since it measures essentially the rate at which gases escape into the atmosphere. The rate of pressure build-up in a shallow borehole of a measured volume is measured for each of the significant gases leaking from the accumulation of oil and gas sought. "The sensitivity of the machine," said Prof. Pirson, "is such that it can detect a leakage of as little as one cubic foot of such hydrocarbon gas per square mile per year."

How the gas leaks out has been a controversial subject for several years. Prof. Pirson disagrees with present theories and has worked out his own which he has tested successfully in his first field work over the only flush oil field which Pennsylvania now possesses, the Music Mountain field brought in in 1937 just south of Bradford, Pa. He did this by digging a series of shallow holes and measuring gas leakages. These measurements not only outlined the limits of the field but discovered the possible existence of a new oil and gas accumulation which showed a leakage comparable to that observed over the Music Mountain field.

Prof. Pirson concluded that "it is perhaps too early to draw general conclusions concerning the merits and future prospects of the new geodynamic method of prospecting" but he makes some definite conclusions on theoretical grounds. The first is that the "method provides the only direct method of finding commercial oil and gas deposits in place under pressure by the observation of dynamic phenomenon of hydrocarbon gas leakage from the reservoir or high pressure source toward the surface of the earth or low pressure region. The method is therefore direct and positive inasmuch as it will not discover accumulations of dead oil, depleted pools or drained out structures, but will indicate only reservoirs under gas pressure giving an active and continuous leakage."

In contrast to other geochemical methods "the geodynamic method does not require analysis of either soil gas or soil samples and therefore must be regarded as a distinctly new prospecting method. The measurements are strictly physical in nature, yet since it deals with the measurement of gas leakage which other geochemical methods claim to attempt to measure, it is temporarily classed among the geochemical methods. . . . . The results are susceptible of quantitative deductions and depth predetermination of the high pressure sources becomes a definite possibility regardless of the presence of shallow accumulations of oil and gas. . . . . The distinction between an oil field, a gas field, or a condensate field before drilling becomes a distinct possibility through the application of geodynamic prospecting. . . . . The interpretation of geodynamic results follows directly from the application of well known mathematical principles, it is therefore straightforward and is not based on empirical rules established by trial and error methods."

Industrial Trucks Save Lube Plant Expansion

Installation of a combination of battery-powered industrial trucks and conveyors in an "important refinery in the West" as a solution to problems arising from continued expansion of refining facilities is reported by STORAGE BATTERY POWER for November, 1940. The trucks are used in the packaging plant where the principal operations consist of filling oil and grease containers ranging from 1-lb. cans shipped in cartons of 12, to 40-50-gal. drums.

The use of two 3000-lb. trucks has not only speeded up operations in the existing space but has made considerably better use of the available storage space because of the ease with which these trucks tier up the drums.

After filling, all containers are handled in large units for storage and shipment. For these operations a fork-truck-pallet system was adopted. At the ends of conveyor lines, cartons and intermediate-size containers are put on pallets which are picked up by fork trucks and carried to outgoing carriers or tiered in storage.

The methods of transferring the large drums from the delivery ends of their conveyor lines to the fork trucks have novel features, it is stated. The conveyors carry the drums two abreast and skid four drums on a pallet to be picked up by the conveyor if they are to be stored. A novel device called a portable loading station is employed for handling drums going to outgoing carriers. This device spaces four drums in such manner that they can be picked up by a truck equipped with a special fork without requiring a pallet.

Power consumption of each truck ranges from 350 ampere-hours per day during normal operation, to 520 ampere-hours during overtime operations, it is reported. The rated capacity of the batteries is 450 ampere-hours but by putting the batteries on charge at noon or at other times when not in use they are able to give additional service.

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One of two 3000-pound trucks which are used to speed up operations in the packaging department of a refinery. The trucks are operated by battery

Rapid Determination of H_2S

A new rapid method of determining hydrogen sulfide and mercaptan sulfur in gases and aqueous solutions is offered by J. A. Shaw, Mellon Institute, in the Anal. Ed. of Ind. Eng. Chem. for Nov. 15. Two Shaw sulfide flasks are necessary (obtainable from Scientific Glass Apparatus Co.), two traps, test tubes with inlet and outlet tubes for gas scrubbing, Gooch crucible and asbestos. A cadmium chloride solution is made up with 10% of the anhydrous salt. Concentrated hydrochloric acid, sodium carbonate solution approximately normal, approximately normal hydrochloric acid, dilute hydrochloric acid, containing 80 ml. of normal acid per liter, tenth or hundredth normal iodine solution, tenth or hundreth normal thiosulfate, starch solution and methyl orange comprise the reagents and indicators. The iodine solution is made up with 2.3 moles of potassium iodide to 1 mole of iodine.

Two procedures are described in which the gas sample is drawn through the cadium chloride solution. By the first, the mercaptans, if present, and the hydrogen sulfide are determined together. By the second, hydrogen sulfide is determined by itself. In this second method acid concentration in the sulfide flask, 3 grams of free hydrochloric acid per liter, is such as to keep the cadmium mercaptides in solution and the cadmium sulfide in suspension.

Tenth-normal solutions are preferable to hundredth normal if the concentrations of sulfide permit. Impurities in distilled water affect hundredth normal iodine solutions noticeably, it is pointed out. High and erratic results were obtained in titrating mercaptans with hundredth normal iodine unless the temperature was kept at 60° F. or below. The hydrochloric acid added to make the separation between sulfide and mercaptides should be added in 3 or 4 portions, with shaking. Normal sodium carbonate is added to the cadmium chloride scrubbing solutions to give an alkaline reserve (of cadmium carbonate) to prevent any marked change in the pH of the solution owing to small amounts of hydrochloric acid being set free by the reaction of the cadmium chloride with hydrogen sulfide and mercaptans.

Sohio to Build Laboratory

Plans for construction of a new research laboratory by Standard Oil Co. of Ohio are announced. The new laboratory, a 2-story brick structure of modern design with 14,000 square feet of floor space, will be built on land purchased from Western Reserve University, Cleveland. This will enable continuation of the co-ordinated program of research there which has grown to require a staff of 21 people in the University's power building.

Dr. Robert E. Burk began the research program in 1928 and will remain in charge. He graduated from Cornell University in 1922, received his M. A. degree from Harvard University in 1923, and his Ph.D. degree at Oxford University in England, where he was a Rhodes scholar.

"The university, with its facilities for systematic and continued instruction of the research staff, provides the means for keeping the staff informed in newly developed scientific fields—an essential factor in an undertaking of this type," according to G. W. Hannekin, vice president in charge of refineries.

Fuel with Colloidal Coal

A liquid fuel through which coal particles are equally distributed has been developed by A. L. Stillman, Plainfield, N. J., and a patent No. 2,231,513, issued Feb. 11, 1941, is assigned to Fuel Research Corp. The coal distribution is dependent entirely upon the "Brownian movement," the particles being made sufficiently small to be kept in suspension.

The fuel is composed of a mixture of approximately 40-70%w of fuel oil such as Bunker C and of 60-30%w of coal of the bituminous type which has been ground in the presence of the oil so that it passes through a 325-mesh sieve. Not all of the coal particles are of colloidal size but the smaller particles keep the larger in suspension.

H. C. Eddy Managing Petreco

Announcement has been made of the appointment of Harold C. Eddy to the position of general manager of Petroleum Rectifying Co. of Cal.

In length of service, Mr. Eddy is the oldest member of the Petreco organization, having been with the company for 27 years. He is a graduate of Colorado School of Mines and one of the pioneers in crude oil dehydration work. For the past few years he has been actively engaged in developing and perfecting the Petreco electrical desalting process. He is the author of numerous articles and papers on crude oil dehydration and desalting and is recognized as one of the leading authorities on these subjects. Numerous patents covering improved processes and apparatus have been issued to him. His work with the company has kept him in close touch with all phases of the business, including field work, research, engineering and business administration.

Mr. Eddy enjoys a wide acquaintance throughout the oil industry and his many friends will be gratified to learn of his advancement.

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New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

December 10, 1940

Method of recovering gasoline from gases—R. C. Keith, Jr., and H. M. Neily, Jr., assignors to M. W. Kellogg Co. Filed Apr. 23, 1938. No. 2,224,227.

Synthetic hydrocarbon oils and process of producing—Melvin M. Holm, Arthur J. Lyman, and Marvin F. Miller, Berkeley, Calif., assignors to Standard Oil Co. (Cal.) Filed Dec. 31, 1934. No. 2,224,349.

Process for manufacture of asphalts from waxy mineral oils—A. P. Anderson, assignor to Shell Development Co. Filed May 18, 1938. No. 2,224,372.

Treatment of hydrocarbon oils—H. C. Dieserud, assignor to Texas Co. Filed June 17, 1931. No. 2,224,570.

High vacuum distillation—Vanderveer Voorhees, assignor to Standard Oil Co. (Ind.) Filed June 20, 1938. No. 2,224,621.

Treating hydrocarbon fluids—W. W. Gary, assignor to Polymerization Corp. Filed June 30, 1938. No. 224,631.

Process for refining hydrocarbon oils—G. A. Lorenz, assignor to Shell Development Co. Filed Dec. 8, 1939. No. 2,224,636.

Process for obtaining volatile products from bituminous substances—Leopold Kahl, Germany. Filed June 17, 1938. No. 2,224,685.

Conversion of hydrocarbon oils—L. G. Story, assignor to Texas Co. Filed July 24, 1939. No. 2,224,840.

Lubricant—E. M. Marks and J. W. Johnson, assignors to Atlantic Refining Co. Filed Feb. 18, 1936. No. 2,224,158.

Modified lacquer and varnish diluent—T. R. Donlan, assignor to Standard Oil Development Co. Filed Feb. 3, 1937. No. 2,224,291.

Lubricant preparation—J. M. Musselman and H. P. Lankelma, assignors to Standard Oil Co. (Ohio) Filed Nov. 11, 1937. No. 2,224,368.

Lubricating composition—P. K. Frolich, assignor to Standard Oil Development Co. Filed June 9, 1939. No. 2,224,541.

Synthesis of drying oils from petroleum hydrocarbons—H. B. Kipper, Accord, Mass. Filed Aug. 17, 1939. No. 2,224,603.

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Refining pressure distillate—W. T. Hancock, Long Beach, Cal. Filed Jan. 14, 1939. No. 2,225,172.

Catalytic condensation of hydrocarbons—William Mendius, assignor to Sinclair Refining Co. Filed July 30, 1938. No. 2,225,347.

Fractionating column—Provi Ostergaard, assignor to Gulf Oil Corp. Filed Dec. 26, 1939. No. 2,225,390.

Extraction process—A. P. Anderson, assignor to Shell Development Co. Filed Mar. 1, 1937. No. 2,225,396.

Method for reactivating catalysts—G. E. Liedholm, assignor to Shell Development Co. Filed June 15, 1939. No. 2,225,402.

Solvent and process for dewaxing mineral oils—D. S. McKittrick and H. J. Henriques, assignors to Shell Development Co. Filed June 20, 1936. No. 2,225,403.

Process for dewaxing oils—R. E. Burk and E. C. Hughes, assignors to Standard Oil Co. (Ohio) Filed Jan. 4, 1934. No. 2,225,546.

Coloring of petroleum distillates—H. W. Elley and H. W. Daudt, assignors to E. I. du Pont de Nemours & Co. Filed Sept. 3, 1937. No. 2,224,904.

Process and reagent for resolving emulsions—T. B. Wayne, Houston. Filed July 29, 1938. No. 2,225,189.

Addition and stabilizer agent for lubricating oils and hydrocarbon liquids (metal-alkoxide-carboxylates)—B. A. Stagner, Long Beach, Cal. Filed May 15, 1939. No. 2,225,197.

Polymerization product and process for producing—F. E. Frey, R. D. Snow, and L. H. Fitch, Jr., assignors to Phillips Petroleum Co. Filed Sept. 6, 1938. No. 2,225,266.

Lubricating composition—A. J. Morway and F. L. Miller, assignors to Standard Oil Development Co. Filed Aug. 26, 1939. No. 2,225,318.

Nitrosation of phenols, and nitrosation of phenolic mixtures—J. W. Teter, assignor to Sinclair Refining Co. Filed June 12, 1937. Nos. 2,225,357 and 2,225,358.

Lubricants—U. B. Bray, assignor to Union Oil Co. (Calif.) Filed Jan. 18, Nov. 2, and Jan. 18, 1937. Nos. 2,225,365, 2,225,366, and 2,225,367.

Lubricating oil composition—S. C. Fulton, assignor to Standard Oil Development Co. Filed June 25, 1937. No. 2,225,430.

Production of paraffin—Otto Roelen, Germany, assignor to Hydrocarbon Synthesis Corp., Linden, N. J. Filed July 3, 1937. No. 2,225,487.

Transformer oil composition—M. A. Dewey, assignor to Gulf Research & Development Co. Filed July 26, 1938. No. 2,225,533.

Preparation of unsaturated carbonylic compounds—C. C. Allen and V. E. Haury, assignors to Shell Development Co. Filed Apr. 4, 1939. No. 2,225,542.

Asphaltic bitumen—J. P. Pfeiffer, assignor to Shell Development Co. Filed Oct. 2, 1939. No. 2,225,570.

Insecticide, fungicide, and like—H. J. C. Tendeloo, Netherlands, assignor to Shell Development Co. Filed Mar. 26, 1937. No. 2,225,573.

December 24, 1940

Process for treating hydrocarbons—M. P. Youker, assignor to Phillips Petroleum Co. Filed July 23, 1935. No. 2,225,814.

Hydrocarbon oil treatment—W. B. Shanley and R. E. Sutherland, assignors to Universal Oil Products Co. Filed July 30, 1938. No. 2,225,847.

Solvent treating—G. W. Gurd and W. N. Munster, assignors to Standard Oil Development Co. Filed Jan. 25, 1940. No. 2,225,910.

Solvent refining of hydrocarbon oil—L. A. Clarke, assignor to Texas Co. Filed Apr. 2, 1937. No. 2,226,092.

Hydrocarbon cracking process—John Happel and G. W. Robbins, assignors to Socony-Vacuum Oil Co. Filed Aug. 4, 1939. No. 2,226,097.

Cracking of oils—Joseph Rivkin, Pittsburgh, assignor to Neville Co. Filed June 22, 1939. No. 2,226,261.

Solid lubricant—M. B. Chittick, assignor to Pure Oil Co. Filed Aug. 8, 1933. No. 2,225,684.

Isomerization of paraffins—A. V. Grosse and Herman Pines, assignors to Universal Oil Products Co. Filed Jan. 17, 1940. No. 2,225,776.

Reaction of metal catalysts—V. N. Ipatieff and B. B. Corson, assignors to Universal Oil Products Co. Filed Oct. 31, 1938. No. 2,225,782

Treatment of catalysts—B. D. Wells, assignor to Universal Oil Products Co. Filed Oct. 31, 1938. No. 2,225,811.

Corrosion inhibitor—J. B. Holtzclaw, Anton Harmsen, and H. H. Cooke, assignors to Stanco, Inc. Filed Dec. 31, 1938. No. 2,225,866.

Diesel fuel ignition promoter—Pharis Miller and G. H. Cloud, assignors to Standard Oil Development Co. Filed July 23, 1938. No. 2,225,879.

Motor fuel and method of preparing same—H. G. Schneider and W. H. Smyers, assignors to Standard Oil Development Co. Filed Nov. 29, 1936. No. 2,225,942.

Process for manufacturing esters—K. T. Steik, assignor to Standard Oil Development Co. Filed Apr. 14, 1937. No. 2,225,944.

Corrosion inhibitor—W. J. Ryan, Wilmington, and M. T. Kendall, assignors to Texas Co. Filed Feb. 24, 1939. No. 2,226,106.

Method and composition for improving diesel fuel ignition—H. R. Wellman, Berkeley, Calif., assignor to Standard Oil Co. (Cal.) Filed May 16, 1939. No. 2,226,298.

Lubricating oil composition, inhibitor therefor, and method of manufacturing same—T. L. Cantrell and J. O. Turner, assignors to Gulf Oil Corp. Filed Sept. 11, Sept. 14, and Sept. 17, 1936. Nos. 2,226,334, 2,226,335, and 2,226,336.

Oxidation of hydrocarbons—W. H. King, New Orleans, and C Q. Sheely, State College, Miss. Filed Apr. 2, 1938. No. 2,226,378.

Stabilized mineral oil—R. S. George and D. E. Badertscher, assignors to Socony-Vacuum Oil Co. Filed Nov. 9, 1939. No. 2,226,427.

Utilization of petroleum refinery gas—E. B. Hjerpe and W. A. Gruse, assignors to Gulf Oil Corp. Filed May 7, 1936 No. 2,226,467.

January 7, 1941

Manufacture of high octane gasoline—D. R. Stevens and J. B. McKinley, assignors to Gulf Research & Development Co. Filed Feb. 26, 1940. No. 2,227,559.

Conversion of hydrocarbons—H. S. Taylor and J. Turkevich, assignors to Process Management Co. Filed Dec. 22, 1937. No. 2,227,606.

Process for converting hydrocarbons—F. E. Frey, R. D. Snow, and W. F. Huppke, assignors to Phillips Petroleum Co. Filed Sept. 24, 1934. No. 2,227,639.

Process for production of hydrocarbon products by treatment of carbonaceous materials with hydrogenating gases—Mathias Pier, Walter Simon, and Ernst Donath, Germany, assignors to Standard-I. G. Co. Filed May 28, 1937. No. 2,227,671.

Thermal treatment of carbonaceous materals with catalysts—Mathias Pier, Walter Simon, Paul Jacob, and Rudolf Becker, Germany, assignors to Standard-I. G. Co. Filed Nov. 29, 1937. No. 2,227,672.

Conversion of hydrocarbon oils—R. F. Trow, assignor to Texas Co. Filed Sept. 8, 1938. No. 2,227,681.

Process for removing naphthenic acids from hydrocarbon oils—F. R. Moser, Amsterdam, Netherlands, assignor to Shell Development Co. Filed May 13, 1939. No. 2,227,811.

Process for removal of mercaptans from hydrocarbon distillates—P. V. Brower, assignor to Shell Development Co. Filed June 19, 1939. No. 2,228,028.

Process for production of nonknocking motor fuels—Hermann Kaufmann and Walter Simon, Germany, assignors to W. E. Currie, New York, N. Y. Filed May 3, 1939. No. 2,228,118.

Treatment of hydrocarbons—K. M. Watson, assignor to Universal Oil Products Co. Filed Jan. 8, 1938. No. 2,228,131.

Diesel lubricant—M. H. Aveson, assignor to Standard Oil Co. (Ind.) Filed Oct. 6, 1938. No. 2,227,690.

Synthetic lubricant—W. B. Plummer, assignor to Standard Oil Co. (Ind.) Filed June 29, 1939. No. 2,227,691.

Diesel oil—E. R. Barnard, assignor to Standard Oil Co. (Ind.) Filed Dec. 19, 1939. No. 2,227,692.

Lubricating oil and lubrication therewith—A. W. Lewis, assignor to Tide Water Associated Oil Co. Filed Mar. 19, 1937. No. 2,227,908.

Sulfurized oil—J. C. Zimmer, assignor to Standard Oil Development Co. Filed June 20, 1938. No. 2,227,952.

Process for catalytic conversion of olefins to alcohols—F. A. Bent, R. W. Millar, and S. N. Wik, assignors to Shell Development Co. Filed June 13, 1938. No. 2,228,027.

Refining ester type oils, fats, and waxes—H. B. J. Schurink and Willem Coltof, Netherlands, assignors to Shell Development Co. Filed June 25, 1938. No. 2,228,038.

Process and products relating to amino methylene aldehydes—J. van Peski, Nicolaas Max, and J. A. van Melsen, Netherlands, assignors to Shell Development Co. Filed Feb. 11, 1939. No. 2,228,039.

Stabilizing ester type oils against cold—George Voogt and Hans Seeles, Germany, assignors to Shell Development Co. Filed Nov. 26, 1937. No. 2,228,040.

Sweetening of hydrocarbon distillates—D. L. Yabroff and A. C. Nixon, assignors to Shell Development Co. Filed Jan. 28, 1939. No. 2,228,041.

Lining tubes—E. C. Leonhardy, assignor to Universal Oil Products Co. Filed Sept. 30, 1938. No. 2,228,139.

Lubricant—W. L. Steiner, assignor to Continental Oil Co. Filed Feb. 3, 1936. No. 2,228,219.